THE

THERAPEUTIC GAZETTE

INCORPORATING

MEDICINE AND THE MEDICAL AGE

A MONTHLY JOURNAL

OF

Practical Therapeutics

EDITED BY

H. A. HARE, M.D.,

Professor of Therapeutics and Diagnosis in the Jefferson Medical College,

GENERAL THERAPEUTICS;

AND

EDWARD MARTIN, M.D.,

Formerly Professor of Surgery in the University of Pennsylvania,

SURGICAL AND GENITO-URINARY THERAPEUTICS.

WHOLE SERIES, VOL. XLV THIRD SERIES, VOL. XXXVII

35293

E. G. SWIFT,

DETROIT, MICH.

1921

Entered according to Act of Congress, in the year 1921, by
E. G. SWIFT,
In the office of the Librarian of Congress, at Washington.

MAYO CLINIC
LIBRARY

The Therapeutic Gazette

Whole Series Vol. XLV | DETROIT, MICH., JANUARY 15, 1921 | Third Series Vol. XXXVII, No. 1

Original Articles

The Management of Strictures

BY THOMAS C. STELLWAGEN, M.D.

Associate Professor of Genito-urinary Surgery in the Jefferson Medical College of Philadelphia

The object of this paper is to treat of strictures in which the difficulties are great. Liston long ago said "the operation of introducing a catheter through what has been called an impermeable stricture is without doubt the most difficult in the whole range of surgical operations and demands all the prudence, science, and skill of a master."

There is no definite line of demarcation between the easy case and the obstinate one, for the simple uncomplicated stricture may at any time become a lesion of the first import by an accident due to manipulation of instruments or from some cause associated with urinary retention and ulceration of the urethra. Most strictures in their beginning are easily managed and do well under treatment, provided the surgeon does not become too radical. Radicalism in early stricture management oftentimes does great harm. By radicalism we mean cutting operations and methods of rapid dilatation; also other procedures that put an excess of stress upon the urethral mucosa.

The kind of stricture about which we wish to write is the type where the operator has been unable to pass an instrument. They are often termed impermeable, a classification which Sir Henry Thompson long ago criticized as misleading and incorrect, but which is still used by many surgeons. It stands to reason that no stricture is impermeable through which a drop of urine can pass, and inasmuch as urine generally passes they are not impermeable. Such a thing as an impermeable stricture can, however, exist; but as a rule has been preceded by rupture of the urethra from external violence or ulceration and internal pressure, which has caused the urinary flow to seek a channel outside its normal canal.

Professor Syme said that whenever urine passes outward through a stricture an instrument ought with care and perseverance to be introduced into the bladder. This doctrine is excellent, and if true, as we know it to have been in his day, should be eminently so to-day. In this era of surgery we have at our command appliances that will assist in the passage of the canal, such as the endoscope, the cystourethroscope, and other perfected instruments of precision. However, I am not in any sense an advocate or believer in some of the procedures that have been suggested for the passage of instruments through strictures. Now and again some one comes forward with a new technique for operation upon stricture in which he claims marvelous things, such as removal of fibrous tissue and conservation of the urethral mucosa. This may be possible, but it has not seemed to me a practical method and is not attempted by a practical surgeon. Every now and again I am asked by some one whether I do so-and-so's operation. My answer is that I follow the beaten path of practical genito-urinary surgery, which does not include the dreams of the surgical

theorist. So much harm can be done and such everlasting suffering can be caused the patient, by impractical methods in urethral surgery that I have not even considered many of the procedures that have from time to time been placed before us.

There are many problems that may cause a stricture to become impassable, among the most common of which are:

1. Extreme contraction of the caliber of the urethra due to shrinkage of the cicatricial tissue.

2. Tortuosity of the canal.

3. Impingement of tumors, abscesses, portions of bone and foreign bodies, such as stones, etc.

4. Reticulation and pocket formation within the urethra.

5. False passages made by instruments or through ulceration, associated as they generally are with fibrous tissue formation.

6. Hypersensitivity of the canal, inducing spasm of the musculature when instrumentation is attempted.

7. Marked eccentricity of the opening upon the face of the stricture, and others unenumerated.

There are several other problems which must always be borne in mind in all cases of stricture. These are of even greater importance than the cause of the trouble, for they are in large measure responsible for the mortality associated with the manipulation and operation.

1. Urethral instrumentation may be followed by a chill that in the feeble or susceptible patient ushers in an attack of urethral fever, eventuating in suppression and death.

2. The innate resiliency of some strictures after manipulation. Thus a passable stricture may become impassable through contraction and bring on complete retention, which through back pressure may cause an imbalance in the secretory function of the kidney.

3. Severe and fatal hemorrhage into the bladder may so call upon the reserve of these frail old subjects as to result fatally.

4. Periurethral phlegmons and other pockets of infection may obtain access to the blood or lymphatic streams through breaks in the mucosa, and the limiting inflammatory surrounding zones, producing septicemia or pyemia. The pyogenous materials of either a normal urine or more so of an infected urine may be absorbed through abrasions.

The foregoing possibilities must always be borne in mind, and added to them are other accidents that may come. Thus it is that great care and gentleness must ever be the watchword in the handling of strictures.

Given a case of apparently impassable stricture, what course should be followed in its management?

The case should be carefully studied to determine the exact location and kind of stricture one has to deal with. For this purpose a complete history is essential. In it particular attention must be given to the cause of the narrowing. Determine whether it followed a gonorrheal infection or was induced by injury, or the use of some cauterant. How long has it been present? How often does the patient have to urinate? What is the character of the stream? If possible have the patient urinate in your presence so that you may determine this. Does urine trickle from the meatus after the bladder is apparently empty? This symptom is significant of stricture, and is explained by the fact that the urethra dilates behind a stricture, forming a pouch which is drained at the end of micturition.

In most cases it is best to put the patient to bed in order to make a complete study of the case. Of course, there are many instances where this rule does not apply. However, if he is a tender case, liable to chills and other complications, it will be well to have him at rest. It should be a cardinal rule to make a rectal examination by touch before any attempt is made to examine the urethra by instruments; for the case may be complicated by enlarged prostate, abscess, impacted stone, or several other lesions. Again, prostatic disease has often been mistaken for stricture; also it is obvious that in a large prostate, complicating stricture, the operator must use great care

in the selection of his instruments to prevent channeling beneath the prostate if the middle lobe is enlarged. In these cases the formation of a false passage is a very serious complication. After the prostate and posterior structures of the urethra have been examined by rectal touch, the case is prepared for study of the urethra. This, unless there be acute retention demanding immediate relief, is best deferred for a day or two. In the meantime the patient is kept in bed and some form of sedative mixture administered to allay spasm and to prevent, as far as possible, the danger from fever induced by instrumentation. It is my rule to use a combination of bromide of soda, belladonna, and paregoric. If one has faith in urotropin it may be given. Irrigations of boric acid solution gently given may also be of use.

When the urethral examination is to be made the following precautions should be taken:

1. A dose of morphine or opium may do good as a preliminary to instrumental study.

2. Have the patient's legs and chest kept warm by blankets or hot bottles.

3. See that he rests upon a hard mattress that does not allow the pelvis to sag into a depression in the bed. If necessary an ironing board may be placed between the mattress and springs, which will overcome any tendency to sagging.

4. Irrigate the urethra thoroughly by means of warm boric acid or salt solution. Do not use any solution such as potassium permanganate or other astringent medication, for it has been my experience that they cause irritation followed by swelling and congestion, which greatly hampers the passage of the instrument. Permanganate solutions are in general used, but I am satisfied that they hinder the surgeon's efforts in these cases, and in so far as their antiseptic properties are concerned it is my belief that boracic acid or salt solution is quite sufficient for irrigation.

5. Careful sterilization of instruments, parts, and hands is a very essential procedure.

6. All filiforms, Gouleys, and catheters should be tested for defects before and after boiling. This is most important. Neglect of this precaution has been in my hands responsible for more trouble and failures than any other cause. A word in explanation may not be amiss. The filiform should have its tensile strength tested; it should be examined for rough places that may shale off in slipping the Gouley over it, and above all each filiform after sterilization should pass readily through the eye of each Gouley that is to be used. The eye of each Gouley should be smooth in order to do away with any sharp shoulders that may cut the filiform like a chisel, leaving a portion within the bladder. This accident I have seen far too frequently, and its dangers can be largely overcome by a careful examination both before and after sterilization. It seems neeedless to insist upon testing the patulousness of all catheters and Gouleys, also the stylets of all metal instruments should be free and efficient. Entrance within the bladder may be unknown on account of inability to draw the urine because of blood-clots blocking the instrument. The stylet will often disengage the clot, thus permitting the urine to flow.

The urethra is filled by a suitable lubricant from meatus to the face of the stricture. Iodoform emulsion in glycerin is very useful and, I think, tends to prevent chill. The lubricant may be gently forced into the narrowed portion of the urethra by pressure exerted from before backward while holding the meatus closed. Wait a few moments before passing the instrument to allow the patient to compose himself. Never hurry in any urethral manipulation in the study of stricture.

We are now ready to pass the first instrument, and the patient is directed to open his mouth and breathe gently and fairly deeply. The arms are extended along the sides and the hands are open. In short have him relax in every way possible, and let your movements and handling of the parts be so gentle as to induce relaxation and confidence. If the surgeon conducts himself otherwise than gently both in manner and manipulation, it will produce a

certain degree of rigidity of muscle in the patient that may defeat the object of the study.

Upon the question of which instrument should be passed first in a case of retention much difference of opinion is held. Of course, if the operator is sure he is dealing with a stricture of small caliber, then the filiform bougie in some form should be used, but if the retention is caused by prostatic involvement a different form of instrument should be selected. The study including the rectal examination should have largely determined this problem before commencing instrumentation. Some surgeons teach that the soft-rubber catheter should be the first instrument inserted into the urethra. This is a point open to argument. The soft-rubber catheter usually can do no harm, but it is obvious that in a small caliber stricture the chances of it passing into the bladder are small. On the other hand the passage of an instrument induces spasm, and this often defeats the surgeon's efforts to pass into the bladder. Hence it is sound judgment to select the instrument that we believe will pass through the coarctation. It is for this reason that I have usually selected the filiform.

While the urethra is distended by the lubricating material a previously selected filiform is entered at the meatus and very gently and slowly passed down the canal until it meets with resistance against the face of the stricture. Then stop and wait a few moments for spasm to relax. Another filiform bougie is now passed down beside the first, and so on until we have a fasciculus of them in the urethra which almost fills its caliber. Each filiform is now manipulated up and down independently of its fellows. Imagine the filiforms as the hub of the wheel—the surgeon must work from as many different angles about the center as the radiating spokes of the wheel. This, of course, is an exaggeration, but the idea of using so many filiforms and working them independently is that in eccentrically placed canals through strictures we will by the above method find that generally one or more filiforms will enter the opening upon the face of the stricture and eventually pass through. The use of filiforms with angular tips and corkscrew turns I have not found necessary, although I believe they have their place. I have a very few times been able to pass a filiform into the anterior opening of a stricture by means of an endoscope, but this procedure I have not found practical; however, it may be tried where the surgeon fails to enter the bladder by the above methods.

Should we fail to enter by the above procedures there are several other things to be done before cutting.

1. Administer an anesthetic if possible and try as above with complete relaxation.

2. I have at times succeeded by allowing a gentle stream of warm water to trickle into the urethra during the filiform manipulation. The warm water tends to relax spasm and often causes a desire for urination, which facilitates passage of the instrument.

When a filiform has passed into the bladder the patient seems to be able to tell and will usually say so. However, the operator by his sense of touch usually determines the fact. If I am fortunate in passing the stricture and into the bladder, unless there be a necessity for catheterization I tie the filiform *in situ* and place the patient at rest for twelve to twenty-four hours before attempting further manipulation. At the next instrumentation I generally succeed in passing another filiform beside the first, and so on upon succeeding days until I have as many passed as the stricture will accommodate. One or more filiforms passed through a stricture into the bladder act as capillary drains and also as dilators. The presence of the instrument at first excites muscular spasm which at times is quite evident, but eventually the muscle becomes tired and the spastic state is succeeded by one of relaxation. Now is the time to determine the particular type of stricture with which we have to deal, and the question of subsequent treatment can be determined.

In a subsequent article I will discuss the operative treatment of stricture.

The Use of Pessaries

BY HOWARD A. KELLY, M.D.
Emeritus Professor of Gynecology in the Johns Hopkins University of Baltimore
AND
ROBERT E. FRICKE, M.D.

One hears but little of pessaries these days, and relatively few are sold at the instrument makers, yet we believe that the pessary still has a useful if limited field of service.

It is an ancient instrument—how old no one knows; it seems to have been almost instinctive for some sympathetic midwife to try to support a prolapsing womb by shoving something into the vagina, and doubtless from this was slowly evolved the modern pessary, as skill and experience increased, and especially as materials, metals and hard rubber, became available which could be molded and adapted to the ideas of the earlier rude specialist attendant. The name pessary, old as it is, has not always signified only a uterine support, but rather a medicated bolus or suppository, to be inserted into the vagina, as a mode of treatment.

Pessaries in the early days were made of wood, leather dressed and shellacked, and of metal. The advent of soft and hard rubber revolutionized the pessary business, which about seventy-five years ago assumed large proportions. With the increased facilities thus offered of carrying out any doctor's novel ideas of construction a world of new pessaries was launched on a confiding profession. Some men, whom it would not be kind to name, acquired a reputation almost over night by the invention of a new pessary for which great claims of comfort and ability to correct flexions would be advanced. This pessary era of the world was largely innocently fostered by the lever theory of action, adopted from obstetrics, ingeniously explaining how the pessary acted by its crooks and its bars to lift up and straighten an anterior or posterior flexed organ and give relief. It is apparent that before the days of a rational abdominal surgery, when so many female ills were inexplicable, it was a temptation to find some such simple mechanical solution of the knotty problems presented to the as yet untutored mind of the embryo specialist, who was a combination of general practitioner and gynecologist.

There was a pessary much in vogue about a hundred years ago shaped like a bent letter U. Old Professor Hugh Hodge (Fig. 3) took this and united the ends, which kept burying themselves in the tissues, and called it the closed lever pessary;

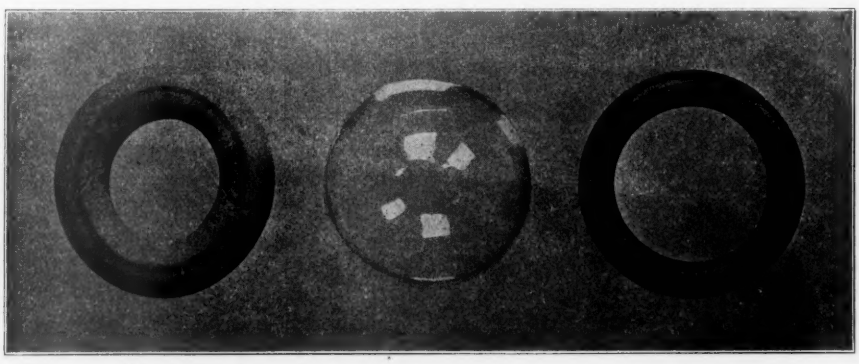

FIG. 13. FIG. 11. FIG. 1.

Soft-rubber ring on left, always to be rejected because it becomes so foul. Glass ball in the center, valuable for prolapsus with a fair outlet. Hard-rubber ring on right. This type is better and the hard rubber is best of about same thickness as the soft-rubber pessary shown.

this, perhaps the best of all, was the progenitor of a vast number of other forms. Albert Smith of Philadelphia narrowed the front end of the Hodge pessary and widened the posterior part, bending it in the form of an S, making the Smith-Hodge pessary (Fig. 4), and his reputation was made, even

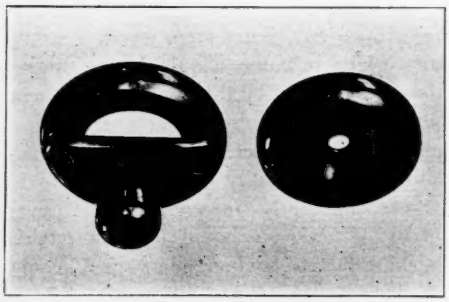

FIG. 2. FIG. 6.

Disc pessary to right, a good substitute for the ring. Menge prolapsus pessary to the left, a type of a very old instrument.

had he accomplished nothing else. T. Gaillard Thomas of New York thickened the posterior bar into a sort of hard rubber cushion to help separate the posterior cervix from the fundus, and then we had the Thomas-Smith-Hodge pessary (Figs. 5 and 14)—a good instrument. Paule Mundé took the Thomas invention and broadened the narrow Smith nose, and we then had the Thomas-Smith-Hodge-Mundé pessary. It

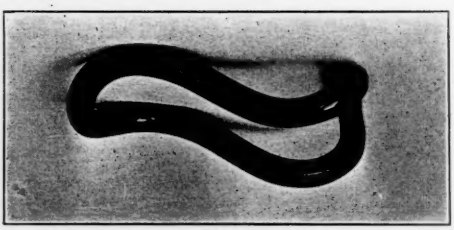

FIG. 3.—Hodge pessary.

sounds ridiculous, but in reality they all had their appropriate places in the gynecological therapy of the day.

It has always seemed to me that the pessary era of gynecology culminated in Grailey Hewitt of England, a typical old-school gynecologist, about forty years ago. As gynecology grew into more of an aggressive surgical specialty, the use of pessaries decreased *pari passu*. I may myself be said to have given a mortal blow to the trade by my suspension operation, treating retroflexions by surgery (*American Journal of Obstetrics*, January, 1887).

As I have intimated above, however, pessaries still have a modest place. What, then, is it? First of all, in the sense of the practitioner of to-day, what can a pessary be used for? I take it that a pessary is not at all used as our forefathers supposed, as a mechanical device to correct a displacement, but that its function is simply to take up a certain amount of slack in the vagina, and to prevent further downward displacement, to keep the uterus from sagging down onto the pelvic floor, and in this way to relieve the dragging sensation. It is likely to be useful therefore in retroflexions with descensus, and for certain cases

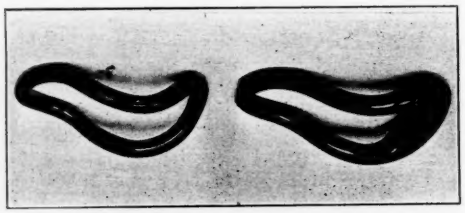

FIG. 4. FIG. 5.

Albert Smith pessary on left, Thomas pessary to right.

of prolapsus, but not in the anteflexions so much pessary-treated by a former generation.

The important factor is not flexion but descensus, and the vital question, whether or no a pessary is likely to help the patient, hangs on an examination which determines whether or not she has any decided descensus, and this is best revealed by examining in a standing posture. Again, to be yet more specific, descensus is oftenest found where there is also a relaxed or broken-down vaginal outlet, following childbirth. There is still another fact to be noted, which is an obstacle in the way, for where the vaginal outlet is much broken or gaping it is impossible to make any decent pessary at all stay in. A nulliparous woman who has a retroflexion but a good outlet,

as a rule needs no pessary nor any other local treatment, for her retroflexion is not usually associated with marked downward displacement. However in the exceptional nulliparous case, in which the uterus does actually descend, a pessary is often very helpful; if the discomforts are of a marked character an operation is far better. So, too, if the vaginal outlet is bad it is best to lift it by a good levator ani perineal operation, and at the same time to open the abdomen and to raise the uterus by a staunch round ligament operation, with the addition as a rule of a shortening of the uterosacral ligaments, to provide a niche for the ovaries to rest in, keeping them off the pelvic floor. Where the outlet is fairly good a pessary often relieves, and the patient either escapes or postpones an operation.

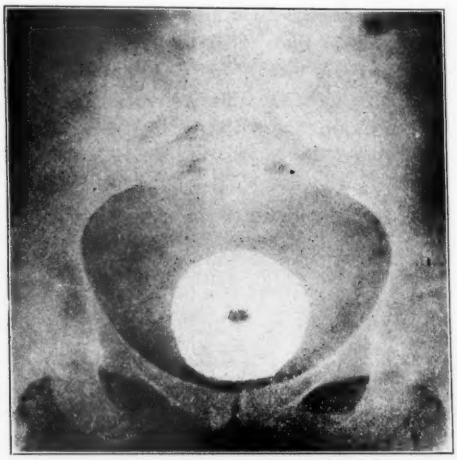

FIG. 7.—X-ray of a disc pessary in place taking up the slack of the vagina and preventing any descent of the uterus. This pessary is coated with foil like the one in Fig. 14.

What is the best form of pessary? The most useful of all is the simple ring made of thick rubber (Fig. 1)—reject all thin ones—large enough to stretch the vaginal walls and take up slack, but not to make a tight fit. If too big a pessary is inserted it will surely ulcerate through the vaginal walls into the bladder or into the rectum. Every gynecologist of experience in the old days saw these cases at intervals, and had to devise means to cut the hard rubber in two or more places so as to get the offending instrument out without injuring the soft parts any further. I have always tried to discourage the use of large instruments by calling them "horse pessaries." A perforated hard-rubber disc (Figs. 6 and 7) is sometimes better than a ring.

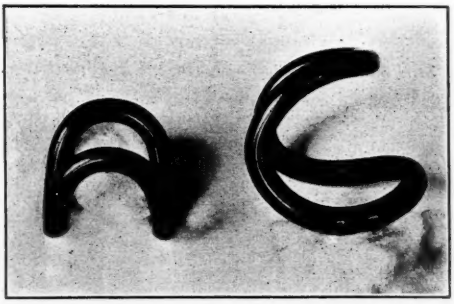

FIG. 8. FIG. 9.

Gehrung pessary on left seen from above as it lies in the vagina, the cervix resting between the bars of the U, convex towards the urethra. The same pessary seen from the side in the right figure.

Next to the simple ring for usefulness I esteem the old Hodge pessary (Fig. 3). When in a correct position the anterior bar must lie easily behind the lower part of the symphysis, with the posterior bar resting behind the cervix. Now the idea of either

FIG. 10.—Gehrung upset pessary in place. This is a hard-rubber pessary. The limbs of the U embrace the cervix. The fact that the pessary does not lie symmetrically in the pelvis makes no difference.

of these is not to correct a flexion, or indeed to pay any attention to it at all, but rather to shove up an incipient prolapsing organ.

There is another group of cases in which the anterior wall of the vagina pouts out; then neither the ring nor the Hodge pessary will stay in place. Here an entirely different form is most serviceable; I refer to the

FIG. 12.—X-ray of patient with a glass ball pessary slipped through the vaginal outlet, which is but slightly impaired, to prevent prolapsus of vaginal walls and cervix.

Gehrung pessary[1] (described in 1873; Figs. 8, 9 and 10). This can be manufactured extemporaneously by taking a hard-rubber ring and holding it in boiling water until it is pliable enough to bend without breaking; one then slowly squeezes two sides together to form an elongate ellipse, and then bends the ends of the ellipse until the sides are parallel and about an inch apart. The still flexible rubber is then transferred to cold water, where it hardens at once and afterwards perfectly retains the new form. I call this an "upset" pessary, as when it is inserted it simply rolls over in the vagina and does not tend to escape. It is worn with the cervix resting between the two limbs of the double U. One ought to have at least three sizes in stock to choose from.

For a well-defined prolapsus of the uterus with eversion of anterior and posterior walls and with the cervix at or near the orifice, when there is any kind of a vaginal outlet left to support the instrument, as is not infrequently the case, then one of several pessaries may be used with relief. A simple light glass ball (Figs. 11 and 12) forms an excellent support, but to insure its retention it must offer a little difficulty in the introduction, which takes place with lubrication and a little hard push to get it over the perineum. It is well to caution the patient to use a finger to retain it if it tends to escape during defecation. A big ring pessary made of material two centimeters or more thick sometimes will do good work in prolapsus, but the tendency always is for an edge of the ring to present at the vaginal orifice and then to turn and slip out. This is obviated by interfering with the obvious mechanism of escape by spanning the ring with a bridge with a stem set in the center of it. Menge

FIG. 14.—X-ray of ordinary type of Smith-Thomas pessary in place. The posterior bar lies back of the cervix and the anterior just behind the symphysis. The pessary looks a little larger than normal, as it is encased in foil held in place by rubber plaster.

has devised a pessary (Figs. 2 and 15) of this sort (an old invention) which I sometimes use; his instrument has a detachable stem (bayonet lock), which facilitates its introduction. The *modus operandi* is this: The stem rests in the outlet and on the

[1]Gehrung, Eugene C.: The Mechanical Treatment of Cystocele and Procidentia Uteri. *Am. Jour. Obstetrics*, 1880, xii, 513-533.

perineum, while the pessary spans the vaginal vault above; now whenever the ring part tends to rotate down towards the outlet the stem impinges on the perineum and prevents further rotation, and so the delivery is checked. Again, let me say it: whatever pessary is used it ought neither to be a tight nor yet a very loose fit; there should be room enough to slip the index-finger easily between the pessary and any part of the vaginal walls.

Is there any danger from the use of pessaries to-day? Yes, very great. Nothing is easier than to convey either syphilis or gonorrhea by inserting a contaminated, unsterilized pessary, and without any doubt this has happened thousands of times, especially in the more distant past, when notions of the methods of the conveyance of infections were not so clear as now. Before use the pessary should be well washed with soap and hot water, and then kept in absolute alcohol for some hours. It is a most reprehensible practice to take a pessary out of a patient and then simply to rinse it and put it away in a drawer, to be taken out subsequently and inserted into another vagina. The wiser practice is to fit the pessary carefully at the first visit, and then to consider it a sort of an individual affair, a piece of personal property, not to be transferred lightly to another woman. Soft-rubber (Fig. 13) and air-inflated pessaries, much in vogue still, ought to be discarded, as they provoke irritating secretions and cause leucorrhea, and are a nasty source of infection. The patient wearing a pessary should use a daily douche of a teaspoonful of table salt dissolved in a pint of hot water. It is not necessary to remove the pessary during menstruation, but it should be taken out once every three or four months, and left out for several days. A patient wearing one should be kept under a doctor's occasional supervising care.

Sexual life is not impeded except by the more voluminous prolapsus pessaries.

In conclusion, then, the pessary is still of use, often as a temporary expedient, pending operation, or sometimes to test out the question whether an operation by giving support to the uterus is also going to relieve the symptoms. It is also a blessing in the old where an operation is too hazardous. A few forms cover all the indications for their use. Great care as to cleanliness is essential to avoid infections. And finally, niney-nine out of a hundred of the legion once used may be rejected with advantage. A few simple forms meet all indications. The simplest and the best is a plain ring.

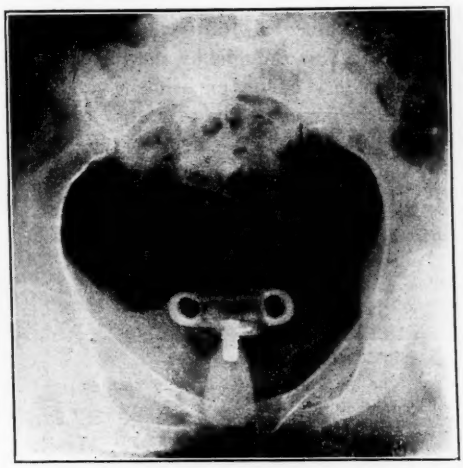

FIG. 15.—X-ray of Menge pessary in place. The conical stem is seen with its base under the symphysis, just in the vaginal outlet, while the disc of the pessary rests as shown, seen foreshortened. The white area in the center is the metal locking device.

Address Presenting Memorial Tablet to Jefferson Medical College, October 7, 1920

BY JOHN CHALMERS DA COSTA, M.D., LL.D.

Samuel D. Gross Professor of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia

In 1914, when the white-robed, gorgeous Spirit of the Spring was scattering pearls and gold on lawn and field and by the roadside, the nations of Europe seemed to be purring on the hearth of Peace. Hindenburg and Ludendorf had not been heard of beyond the borders of Germany. Only the lips of a few Frenchmen breathed the now immortal names of Joffre and Foch. The submarine was thought by the public to be more or less of an experiment, and was supposed by many to be scarcely more than a fancy of Jules Verne. Persons occasionally quoted, and with a sort of tolerant incredulity, the lines of Tennyson:

Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales.
Heard the heavens fill with shouting, and there rain'd a ghastly dew
From the nations' airy navies grappling in the central blue.

In contrast to this the believers in that widely advertised quack remedy, The Hague Tribunal, also quoted Tennyson, with confident belief:

Till the war-drum throbb'd no longer, and the battle flags were furl'd
In the Parliament of man, the Federation of the world.

It is true that France was the seat of great economic unrest and that her socialists were active in the congenial task of reducing the army. That the dull, brutish masses of the vast dominions of the Romanoff Czar were becoming articulate in portentous words and acts. That the embers of discontent in Ireland threatened to flame into actual revolution. That in America various groups of sentimental busybodies were striving to destroy the carefully laid foundations of truly free, genuinely democratic, constitutional government. That Germany, with glaring eyes and buffalo strength, was trampling down all obstacles on the path which leads to the goal of commercial and industrial supremacy. But statesmen and diplomats other than Germans failed to see in the heavens a blood-red comet presaging the impending conflict.[1]

Toward the end of June a mighty fleet of British war-ships paid a visit of amity to Kiel. The welcome extended by the German fleet seemed cordial and spontaneous. The Kaiser was visited by and visited in return Vice-Admiral Sir George Warrender. The sailormen of the two fleets celebrated and fraternized boisterously and alcoholically on shore. During the maneuvers a monstrous German Zeppelin sailed lazily over the visiting fleet. Messages of good-will were thrown down by its crew to the visitors. Beyond doubt the appearance of an English superdreadnaught, viewed from the sky, was noted with scrupulous and photographic accuracy. "Coming events cast their shadows before."

All persons present, except Germans, were convinced that the old enmity between England and Germany was at last ended, that friendship was secured, and that looming gladly in the near future was an Anglo-German understanding.

At this time Lord Haldane, the Scotchman at the head of the British War Office, was proclaiming that Germany was "the land of his soul." But the German war party, which was represented by German Officialdom, had very different beliefs, and was brooding out vastly different plans. The final touches were being put to that colossal and marvelous war machine so that it might be ready in all particulars for "The Day," dreamed of so persistently and longed for so ardently. When "The Day" should come, and it was dreadfully near,

[1]Many of the statements which follow were taken from Frederick William Wile's valuable book, "The Assault."

the war machine was expected to crush into annihilation the liberties of the entire world. And it almost succeeded in doing so. Had it not been for the United States it would have done so. It failed by the breadth of a hair.

During June a German commission, every man of which was an expert on guns or ammunition, visited England and was received by British officials. Herr Krupp von Bohlen und Holbach, of the great gun company in Essen, was a member of the commission. With a fatuity which now seems incomprehensible the English hosts showed the German guests everything. There were no secrets from those privileged visitors. They were given a complete exposition of where war material was made, of how it was made, of how much of it was made, and of how much of it could be made under stress of necessity. At the same time Dr. Dernberg (the same Doctor who later left so unsavory a trail in the United States) was in London, and he was shown by representatives of the British government the most confidential governmental details, financial, economic, and industrial; Herr Balin, the head of the great Hamburg-American lines of ocean steamers, was investigating the British merchant marine; and Grand-Admiral Prince Henry of Prussia, in intervals between dinners, balls, and receptions, was examining immensely important and supposedly secret records of the English navy. Germany did not have to stack the cards. England handed her cheerfully most of the trumps before the game began. That Germany knew with certainty what was coming and was preparing for it carefully is shown by the following statement of fact: On the second of June, 1914, the military governor of German Southwest Africa sent most of his officers home to Germany on leave. Kismet! it was written.

On the 28th of June the Archduke Franz Ferdinand, heir apparent to the throne of the House of Hapsburg, was assassinated in Serbia, and "the red name of Sarajevo splashed upon the pages of history." Events moved with deadly rapidity. The Austro-Hungarian ultimatum, the Austro-Hungarian war upon Serbia, and mobilization of the troops of Germany and Russia.

Sunday, August 2, Germany declared war upon France and Russia. At midnight on August 4, the English ultimatum to Berlin expired and the British Empire became automatically at war with Germany. The awful tragedy, the crime of the ages, was at once in bloody progress.

The dark chancery of fiends promptly let loose all the hosts of Satan. Soon what a frightful inferno of horror was displayed to shocked mankind. Demons rejoiced and angels wept. Belgium raped and harried! Northern France blood-stained and desolated! Once prosperous cities piles of ashes! Holy cathedrals, sanctified by the faith of a thousand years, heaps of ruins! Great and ancient seats of learning wiped from the face of the earth! Fields which should have been nodding with abundant harvests, torn by great explosive shells into "lunar landscapes," and gleaned only by the reaper Death! Wolves gathering from the forests! Vultures flocking from the air! Women ravished and executed! Children mutilated! Men slaughtered by myriads! Civilization palsied! Christianity impotent until some cried in Kipling's words:

> "I can find no ease
> In your pale Christ and tangled trinities!"

The Huns rode as masters upon this awful whirlwind of their own creation. They made a desert and called it Peace. They asphyxiated with vapor. They poisoned with gas. They slew with liquid fire. They cast down sudden death from the skies, and, by means of the submarine, that deadly cobra of the sea, they struck and sunk great ocean liners, filled with noncombatant men and innocent women and children.

Truly the world looked upon the worst of all possible spectacles, the strength of civilization without its mercy. In order to satisfy the insane arrogance, vanity, and ambition of a wretched and stupid Hohenzollern, William the Damned, men from Asian Kiau-Chau to the Atlantic Ocean and

from Archangel to South Africa cut each other's throats.

Our government, with the support of all political parties, strove long, honestly, and with unequaled patience to be strictly neutral. Outrage followed outrage. Infamy trod upon the heels of infamy. Again and again the Kaiser promised to comply with our just demands. Again and again he broke his solemn pledges. We learned the bitter truth of Strafford's plaint, "put not your trust in Princes."

Finally, in spite of a positive promise to the contrary, Germany renewed submarine warfare on neutrals. The Emperor said he would "stand no more nonsense from the United States." And he did not have to stand anything resembling nonsense from the United States. He got instead the most magnificent, forceful, and irresistible good sense. The President cast down before the world a historic message, a message as radiant as though it were traced in words of living light. In that message he made answer to German pretensions, assumptions, and exactions with a glorious and everlasting "No!" The Nation rose to the support of the Chief Executive. We declared war on Germany. We stood shoulder to shoulder with France, England, Italy, and Belgium. The United States was soon arrayed in the proud panoply war. All classes went to the colors. Most men wore the khaki, but many wore my own beloved naval blue. Sons of millionaires became comrades of youths from the Ghettos of our great cities. The blacksmith became the "buddy" of the lawyer, the farm-hand of the merchant, the miner of the secretary, the cowboy of the clerk. Men by the million were collected and trained in immense camps and were sent across the storm-swept, mist-shrouded, submarine-infested waters of the North Atlantic.

Then came the red and roaring line of battle, our fight of 47 days, and those names enshrined forever in the Holy of Holies of our history—Chateau Thierry, St. Mihiel, the Meuse, Belleau Wood, the Argonne; our 34,249 killed in battle; our 224,069 wounded, of whom 13,691 died; the armistice, peace, and the exile to a Holland chateau of the cursed author of all the horrors, where he practices "the set, gray life," and will reach "the apathetic end." A ghastly and pathetic figure of retribution. In the Civil War, lasting over four years, there were, on the Union side, 44,238 killed in battle, 246,712 were wounded, and of these 31,978 died. In the world war nearly 35,000 were killed in 47 days; in the Civil War nearly 45,000 were killed in four years.

The desperate evil William inaugurated is still breeding its foul brood. In the words of Ecclesiastes: "All inquity is like a two-edged sword; there is no remedy for the evil thereof."

"So many sorrows in so many lands,
So many streaming eyes and wringing hands."

Life on the old lines is done forever. We walk untrodden ways. We have left the Land of Certainty and sail the waves of Chance. Some Catos of the club dictate our policy. The world has become educated, sober, respectable, and horribly unhappy. Everywhere we meet with unrest and discontent. We treat this condition with entire imbecility. We consult few persons but governmental quacks. When resentment is actually flaming at arbitrary abbreviations of our liberty we meet the perilous situation by curtailing more of our liberty. Individualism puts forth claims and is met by shrieks for efficiency, the very antithesis of individualism and the real father of degeneration. For 25 years neither Congress nor a State legislature has passed a single act to broaden our liberties, and Congress and legislatures have passed many acts to limit and restrict them. All major crimes are enormously on the increase. Only petty offenses diminish. Real righteousness seems to have gone down to a great degree before meaningless convention. Many modern reforms to succeed would require as a basis the total repeal of human nature. The contagion of delusion sweeps over the entire earth. The proletariat is in the saddle. Drivers of milk wagons are paid more than professors of philosophy. The average bricklayer ob-

tains greater financial reward than the average physician. Callosities on the palms command more money and more respect than convolutions of gray matter. Blacksmiths rank higher than scientists, and therefore Andaman Islanders must rank higher than psychiatrists. The church house is not nearly so wide open as the station house. It is financial wisdom to advocate the popular error. The frenzies of fashion madden great classes. Hate and envy are twin monsters unrestrained and gaining hourly in strength and ferocity. Tainted persons attain high office. Moral indignation can no longer gather irresistible strength. Character is vilely adulterated. The sense of personal responsibility seems to have been lost absolutely. Many a crooked business deal is regarded as a piece of admirable finesse. Inclination poisons duty. There is no respect for experience or common sense. Every demagogue has his followers, every fool his partisans. The air resounds with the brays of those who follow various osophies and isms. Great masses have entered into the labyrinth of mysticism and regard the Almighty God merely as a sort of President of a Board of Directors. Logic has departed from thought and reason from action. We see before us, grisly and menacing, the horrid figure of religious persecution.

"These giant hopes, these towering schemes,
"Conceived beneath a blood-red star,
"These frantic feuds and nightmare dreams,
"I know them for the things they are."

Yet we Americans must not under any circumstance let the sacrifices of the war be rendered vain. We must fight to the death these evil tendencies. We must not abandon hope. We must ever look

With a poet's eager eye
Spite of critics scorning,
For the rosy bow of Hope
On the grey of morning.

It must never be said in history that our brave fellows died in vain. I know their young souls counsel us not to despair.

"No man to nurse despair;
"But in the teeth of clenched antagonisms
"To follow the worthiest till he die."

No class responded to the call to arms more nobly than physicians. When the war started there were but 500 officers in the medical corps of the army. When the armistice was declared there were over 30,000. In other words, during the war 98.3 per cent of the officers of the medical corps came direct from civil life (George Emerson Brewer). The same was true relatively of the medical corps of the navy. Most of these doctors from civil life gave up practices made or in the making, abandoned hard-won positions, cast aside irrecoverable opportunities, and in not a few instances left families in poverty with scarcely means enough to provide food and lodging. Many wives and daughters had to go to work when the breadwinner had departed.

Most army doctors returned when peace was attained. Some returned to their old places and former prosperity. Not a few came back to find their positions filled, their practices lost, their former rivals living in abundance. How could any person dare to do such things to soldiers? He could not if we remembered the words of that splendid physician and prince of gentlemen, the late Lieut.-Colonel John McCrae, the brother of our own distinguished Professor of the Practice of Medicine. Colonel McCrae lost his life in Flanders serving with that magnificent corps, the Canadians. He wrote:

"To you from failing hands we throw
"The torch; be yours to hold it high.
"If ye break faith with us who die
"We shall not sleep, though poppies grow
"In Flanders fields."

Many never returned. Some were lost at sea. Some were killed in action. Some died of gas or wounds. Some perished of disease in camp or hospital. All of them alike entered the dark portals of eternity in patriotic service to the nation.

The sons of no institution in the land responded more splendidly than those of Jefferson. Such has always been our habit. Ever since our foundation the inexorable messenger of Death has found sons of

Jefferson on all the battlefields of the Republic.

We have about 5000 living graduates. One thousand two hundred and sixty-eight of them entered the army; one hundred and sixty-seven of them entered the navy—a total of 1435. The College was represented in the services by men from every State and from all the foreign possessions of the United States. Classes were represented as far back as 1862, 1870, and 1872. From 1875 to 1918 inclusive, every class was represented. Sixty-five per cent of our gradutes for the five years preceding 1918 served in the army or navy. The class of 1916 had a larger number of men in the service than any other class—103. The class of 1917 had 94. The class of 1918 had 91.

The Student Army Training Corps was not counted with the 1435 cited as in the service. That corps numbered 431 men sworn into the service—398 in the army and 33 in the navy.

The Jefferson Hospital Unit, which went to France, was equipped at a cost of $210,000 and was composed of 34 physicians, 100 nurses, 5 civilians, and 200 enlisted men. Seventy-five graduates of our training school for nurses went to war, served nobly, faced danger heroically, stood hardship without complaint. I take off my hat in admiration to all those brave and gentle women.

Many of our graduates were given citations or were decorated by foreign governments. I have a list of 27 of them, and the list is far from complete. One got the Order of the Bath; 3 Officier of the Legion d'Honneur; 1 the Belgian War Cross; 2 the Croix de Guerre; 5 the Distinguished Service Medal; 12 the British Military Cross. Morgan, a former resident of this hospital, is one of our Legion of Honor men. Petty of this hospital received the well-merited, seldom given, and magnificent honor of the Congressional Medal. Only 54 men live who received this decoration. Major W. W. Keen, the Emeritus Professor of Surgery, was decorated as Officer of the Order of the Crown of Belgium.

We know of five who were seriously wounded, viz.: Beck of New York; Berney of Scranton; Fogerty of Philadelphia; King of New Jersey; McCutcheon of Virginia.

Twenty-six passed to the bosom of eternity. Seven were killed in action; two were lost at sea; seventeen died, just as truly for their country, in camp or hospital. The classes which hold upon their rolls the sacred names of our dead are '89, '92, '02, '06, '07, '08, '10, '11, '12, '13, '14, '15, '16, '17, '18. I had the high privilege as Assistant Demonstrator, Quiz Master, Demonstrator, or Professor, of teaching every one of these men who died for the nation.

We will always hold them in sacred memory, and also the names of the places where they died. They died to save us. Wherever man has died for man that spot is holy ground. It is proper that names of our heroes should be commemorated. The Alumni Association decided that their names should be placed on a tablet, and that the tablet should be hung in the halls that those soldier and sailor surgeons knew so well and loved so much. In consummation of the design of the Alumni this tablet has been made. In the name of the Alumni I present it to the College.

It will always be upon our walls. Generations of students yet unborn will look upon it. It will touch our hearts, stir our patriotism, read us a lesson of heroic duty, thrill our souls, and raise us to higher deeds and nobler aspirations, to think of those brave and gallant gentlemen who made the final sacrifice to save the nation.

Dulce et decorum pro patria mori.

Vaccine and Gland Therapy in Various Disorders[1]

BY J. W. TORBETT, M.D.
Marlin, Texas

I shall give in this paper only a brief résumé of the conclusions drawn from the results in treating 4686 cases of all kinds, mostly chronic, in the Torbett Sanatorium, from January 1, 1919, to August 1, 1920, thus avoiding the long, tedious details of each individual case. Of this number 27.7 per cent gave a history of having had during the first or second epidemic a more or less severe case of influenza, which was considered to be one of the causative or exciting factors in the ailments for which the patient sought relief. Many patients would start their history by saying, "Well, I had the 'flu' and have never felt right since." Some cases were so mild they never went to bed. On the other hand I have seen several patients apparently cured of existing troubles by an attack of influenza. Many more cases, however, claimed an exacerbation of their previous chronic complaints following a slow convalescence from the respiratory infection they called the influenza.

In August, 1918, we began using the vaccines as a prophylactic, but soon used them as a treatment even with a fever of 104°, if a leucopenia or polymorphopenia was found present. In approximately three hundred acute cases of influenza in the first epidemic we had but two fatalities—one an invalid to start with who was given the vaccines, and the other a lady, pregnant five months, with both lungs involved and seen first on the fourth day. The bicarbonate or citrate of sodium was given alternately with fruit juices to insure the normal blood alkalinity which we think promotes the needed leucocytosis.

About six hundred of our cases were venereal, with or without influenza as a complication, and they were all treated along the special lines for those troubles. All cases which would or could submit were first examined physically from their head to their feet, by two or three different physicians in different departments, together with a complete blood, urine, and fluoroscopic examination—the Wassermann and other tests being added if the physical examination or clinical history indicated the necessity for such. The symptoms of hypo- or hyper-activity of the thyroid and other glands of internal secretion were looked for. Of course, all foci of infection were sought and removed from the teeth to the toe-nails, as infected ingrowing toe-nails or an ulcerated navel were occasionally found as the causative factors. In very few patients could one factor alone be assigned as the sole cause of ill health. Of course, a large percentage of all chronic cases have more or less pyorrhea, which may be a potent causative factor, but the writer has for years believed this to be a local manifestation of an imperfect systemic elimination, a one-sided diet, and oral uncleanliness.

Infected tonsils were considered to be a probable cause and removed in about 25 per cent of all our cases, followed by a prompt recovery in many and a slower recovery in others, after general treatments by elimination, etc., mentioned below. Infected sinuses, as shown by the late methods of transillumination, were found more frequently than heretofore thought. Glycerin and ichthyol tampons, locally applied, with operative procedures often to procure better drainage or breathing space, gave satisfactory results.

Since 27 per cent of our cases gave a history of influenza that might have lighted up or caused the sinus and tonsil infections, we found of course a large percentage of pulmonic infection as shown by the râles, cough, prolonged expiration, etc., and a peculiar diffuse haziness as shown by the fluoroscope. Our *x*-ray man by this alone would often tell the patient of the previous attack of influenza. This observation has been confirmed by several men of large

[1]Read before the American Electro-Therapeutic Association, Atlantic City, Sept. 18, 1920.

experience. Our observations, however, are in harmony with Fishburg's in his recent article in the *American Review of Tuberculosis*, November, 1919, in which he states that influenza was not so common nor severe in tuberculous patients as in others; neither was it a reactivator of healed or latent cases. Our patients who coughed showed in their sputa staphylococci, streptococci, and pneumococci, with but few tubercle bacilli. A large percentage of these cases with pulmonic infection, as well as many others, showed a decided leucopenia, being about evenly divided between cases of latent or active malaria and post-influenza toxemias. Many American and foreign authorities found leucopenia present during the active stage when there was no active pneumonia or empyema. Bache of Sweden in a recent article mentions this fact, and further says that if a decided leucocytosis occurred when complications like pneumonia arose, recovery was much more prompt. Most of the chronic pulmonic sequelæ we saw had also migratory myalgia, and some form of neuralgia, neuritis, or arthritis.

A large percentage last year and a still larger one this year showed what is commonly called a lymphocytosis, but which we prefer to call a polymorphopenia, in which the polymorphonuclears were less than 60 per cent and often down to 25 or 30 per cent. They are the phagocytes.

The writer considers this of more importance in chronic low-grade infections, because the polymorphonuclear cells are most concerned in the destruction of systemic bacteria, and hence a polymorphopenia would seem to indicate an exhausted condition of the leucocytic hemopoietic tissues. A review by the writer of hundreds of blood counts made on all classes of chronic cases at the Battle Creek Sanitarium showed a polymorphopenia last year in 23 per cent of all cases and in 27 per cent of all cases this year, regardless of whether they had been affected with influenza. In our clinics the number never exceeds more than 20 per cent at any time. Many of these cases complained only of vague migratory myalgic or neuralgic pains with a decided loss of "pep" or energy.

In all acute cases with fever like influenza, pneumonia, cholecystitis, arthritis, etc., where the leucocytes were not in a ratio of 1000 above 10,000 for each polymorphonuclear above 75 according to Gibson's table, a mixed polyvalent vaccine—usually Rosenow's mixed influenza and pneumococcic—was given, the dose being repeated according to reaction of the flesh and also the blood picture. In some cases not reacting phylacogen was used intravenously. Radiant heat and light were used every four hours over the inflamed parts if possible; while often liniment of menthol, camphor, and iodine in vaselin, or petroleum, was gently rubbed in for its local and systemic effect. In most cases the leucocytes were increased two or threefold in three hours with prompt improvement. In all chronic cases with pulmonic, rheumatic, or neuralgic symptoms which had leucopenia or polymorphopenia, one-half-grain doses of iron cacodylate were given when the hemoglobin and red cells were low, and three-grain doses of the cacodylate of soda when they were not so low, in addition to the vaccines. The soda was always given in the veins. The usual general eliminative, physiotherapy, and dietetic treatments were of course given.

The blood picture and the patient's feelings usually became normal or very much improved in three or four weeks. Jobling and Peterson, Culver, and many other authorities too numerous to mention have shown that vaccines and foreign proteins increase the leucocytes. Horace Greeley in the *Medical Record* of October 11, 1919, shows that there is protective immunity obtained by influenza vaccines. E. C. Rosenow in several articles, the last one in the *Illinois Medical Journal*, March, 1920, claims a protective immunity in 60 to 80 per cent of all cases vaccinated. We used vaccine in both acute and chronic cases because of their known effect on the leucocytes and for the additional effect of securing whatever immunity might be obtained. H. W. Watters in the *Boston Medical and*

Surgical Journal, December 25, 1919, also Duval and Harris in the *Journal of Immunology,* September, 1919, all confirm the protective immunizing properties of a mixed influenza vaccine which lasts from three to five weeks up to several months in some cases. Duval and Harris claim that chloroform is superior to other agents as a vaccine preservative.

Many chronic cases if examined closely will be found to have hypo- or hyperactivity of one or more glands of internal secretion given a gland disharmony. Whether it be due to a one-sided diet, imperfect elimination or a postinfluenza or other toxemia, the proper gland given will greatly aid in restoring health. The dry skin, reduced endurance of cold, lowered tolerance of meat, slowed pulse, dry, falling hair call for thyroid gland, and if constipation, or a boggy uterus with profuse menstruation, be added, pituitrin should also be given. Ovarian substance should be given girls with amenorrhea along with the iron or sodium cacodylate, and also for the nervousness and hot flashes of the climacteric. The mammary extract is useful for girls with profuse menstruation and small undeveloped breasts, also for the same state in women at the climacteric, with pituitrin added if fibroids be suspected.

In addition to the above aids, a brief résumé of the general treatments or rational therapy given all chronic and many acute and subacute cases might be of interest. At least half of all our chronic cases have a chronic spastic constipation, often of the nervous or habit type, but usually accompanied by a catarrhal or ulcerative colitis which can be the source or cause of systemic toxemias from skin troubles, neurasthenia, or rheumatic conditions to Bright's disease.

CONCLUSIONS.

First: Find and remove if possible all foci of infection, which was found in some form in slightly more than 50 per cent of our cases.

Second: Promote elimination through the bowels, kidneys, skin, and lungs by the use of modern physiotherapy, air, food, drink, baths, and medicines occasionally.

Third: Immunity. Use specific or polyvalent vaccines when leucopenia or polymorphopenia is present.

Fourth: Specific chemotherapy. Use quinine and arsenic for malaria; "606," mercury, and iodine for syphilis, antitoxin for diphtheria; also the gland substances for the various conditions requiring them.

Fifth: Alternate exercise, rest and sleep. Use work and play, walking, physical culture, auto massage, Morton wave, sinusoidal electricity, hot and cold douches, or spray, with regular hours for sleep in a dark, well-ventilated room.

Sixth: Food and nutrition. Use a balanced ration of not more than four or five kinds of food at each meal, usually the low protein dietary, with green vegetables and fruits, and always a slight preponderance of the alkaline bases over the acid radicals, remembering that meat and bread give acids, while most fruits and vegetables and milk give alkaline bases to the blood.

Seventh: Psychotherapy, mental therapy, suggestion, Christian science, prayer-and-faith cure, fun and jokes, optimism should one or all be used to banish worry, arouse hope, renew one's courage and the desire to live, and are of value according to the operator using them.

Benzyl Benzoate in Circulatory Conditions.

In the *New York Medical Journal* of August 28, 1920, MACHT states that he has found few cases of high blood-pressure in which that condition was not relieved, at least temporarily, by benzyl benzoate. Most of the cases treated with the drug were ambulant patients who attended to their daily occupations while taking the drug while all the other conditions were the same. The only difference being the taking of benzyl benzoate, the effect of the drug in reducing the blood-pressure was indisputable. In most of the patients the reduction of the blood-pressure was accompanied by an improvement in their general

condition. Thus, patients who complained of precordial pain or oppression showed decided improvement in that respect.

The most convenient and effective form of administration of the drug was found to be the one originally used in his earlier experiments. A twenty-per-cent alcoholic solution of benzyl benzoate was administered by mouth, either in cold water or milk. The ordinary dose was found to be twenty or thirty drops of such a solution, taken three or four times a day. The administration of benzyl benzoate in the form of a solution was found to be especially useful because it allowed of a convenient reduction of the dose whenever desirable. Macht found that after administering to a patient full doses of benzyl benzoate and obtaining a desirable therapeutic effect, the reduced pressure could be maintained by keeping a patient on very small doses of the drug, sometimes no more than five minims of the twenty-per-cent solution.

The effect of benzyl benzoate on the blood-pressure was demonstrable even in such cases in which nitrites failed to produce a vasodilatation. Thus, he has been able to reduce a high blood-pressure in patients who have become habituated to nitroglycerin and sodium nitrite. The onset of the benzyl effect, however, is not as rapid as in the case of nitrites, although sometimes the vasodilator effect was appreciable within thirty minutes. The duration of the benzyl effect, on the other hand, was much longer than that in the case of the nitrites, with the possible exception of erythrol tetranitrate. The blood-pressure sometimes remained at a low level for several days after discontinuing the drug.

In his experience no toxic effects have been noted after administration of benzyl benzoate by mouth. The drug has been given to some patients repeatedly for periods of over a year or more, without producing any untoward symptoms. So far as he has been able to ascertain from examinations of urine and functional tests of the kidneys, benzyl benzoate does no harm to the latter organs, and may therefore be administered, if desired, to patients suffering from nephritis.

As in the case of nitrites, however, the writer has noted after observations extending over a period of more than two years that patients will become habituated to benzyl benzoate and will not react as promptly to it as at the beginning of the treatment. Such patients, however, were generally of the nephritic type, whose condition was expected to become aggravated in the course of time.

While benzyl benzoate acts as a vasodilator and will therefore reduce excessively high blood-pressure, the indications for its clinical use are precisely the same as for the use of other vasodilators, such as the nitrites. Its action is a purely symptomatic one, that is, in reducing the blood-pressure. It is of course well known that a reduction of the blood-pressure in many cases of renal disease and other conditions is not indicated and may even be harmful. In such cases, of course, benzyl benzoate is not to be used any more than nitroglycerin or sodium nitrite.

Macht has not only noted a beneficial effect following the use of benzyl benzoate in patients with hypertension who suffer more or less from precordial pain, but he has also given the drug successfully in a few cases of angina pectoris. If, as is generally supposed, anginal attacks are due to paroxysmal spasm of the coronary arteries, the favorable effects of benzyl benzoate may be explained by its vasodilator action on those vessels. Spach, of Chicago, collected a series of such cases. The pharmacological action of benzyl benzoate certainly warrants a more extensive trial of that drug in the treatment of this condition. The best method of employing it would seem to be to administer it between the acute anginal attacks. For the acute attacks the effect of benzyl benzoate by mouth would be too slow, and in order to relieve the patient it would either have to be given by subcutaneous injection in oil or, still better, the attack should be combated with a whiff of amyl nitrite.

Editorial

THE VALUE OF GLUCOSE BY RECTUM.

For many years it has been the custom of medical men in cases of obstinate vomiting, or in other conditions where food could not be taken by the stomach, to administer so-called nutrient enemata. With the advances made in the use of digestives it has been customary during the last thirty or forty years to predigest, by the aid of pancreatin, milk or other animal food prior to its rectal injection, with the idea of providing the body with nutritive material which would be readily absorbed. It is well known, of course, that the rectum is a part of the alimentary canal which is not designed for absorption, and we think it has been the experience of most clinicians that while the fluids given in the enemata to which we have referred are absorbed, the solids are not absorbed, and hours or days after are passed from the bowel. In other words, the patient who receives a predigested nutrient enema, consisting largely of proteids, gains very little over and above that which would ensue if plain water or a weak saline solution was employed. The body is supplied with fluid, but the physician and patient are deluded if they believe that the patient is being truly nourished.

Researches carried out by Edsall and others some years ago prove the correctness of this view. They were not content alone with studying the material which was ultimately extruded from the bowel, but by careful studies in the realm of physiological chemistry showed fairly conclusively that the patient, under the conditions which we have described, was in reality living on his own tissues, although material advantage of course accrued from the supply of fluid.

These facts being true it is natural that the profession should have turned to other methods with the hope that something might be found of nutritive value which would be absorbed from a rectal injection, and as a result glucose or dextrose, or other saccharides nearly related thereto, have been administered in many instances with some advantage. But comparatively little work has been done to determine whether a sufficient quantity of the carbohydrate substance is absorbed to be of real nutritional value.

Ornstein, using dogs for a series of experiments and employing a washing-out method some time after a glucose injection was given, seemed to show that some absorption took place, and it is interesting to note that he found that if the glucose was given in starch it was better absorbed than if given alone.

Nagel as long ago as 1909 called attention to the fact that glucose was so absorbed, and his observations have been confirmed by a number of others, notably Schönborn, who stated that a glycosuria could be produced if glucose was given freely by the rectum.

More recently this subject has been carefully reported upon by Tallerman of the Department of Chemical Pathology in St. Thomas's Hospital, London, who has contributed a paper to the *Quartely Journal of Medicine*. He quotes Reach as having shown as long ago as 1902 that the change in the respiratory quotient following rectal injections of glucose indicated that this substance was slowly absorbed. It appeared to Tallerman that the work so far carried out upon animals and man was insufficient and inexact, and he therefore determined to study the blood sugar after a rectal injection of glucose solution, endeavoring to decide not only whether it was absorbed, but how quickly and completely it took place. He used what is known as the method of Maclean. This method requires a very small amount of blood (0.2 Cc.) and therefore is particularly advantageous when the sugar content of human blood is being studied. He dissolved 2 ounces of solid

glucose in 6 ounces of normal saline and injected this slowly into the rectum, following the method ordinarily employed in attempted rectal feeding and allowing ten minutes for the period of injection. He used this small bulk of fluid with the hope that it would be readily retained, and this proved to be the case.

Tallerman first took a sample of the blood before injection, and at regular intervals afterward, making a sugar estimation from each sample. Finding that 20 minutes after the injection was too soon to get results, he resorted to half-hour intervals, taking in all six samples at such periods, with the final sample at the end of the fourth hour. Care was taken to employ patients in whom there was no disease or disorder of the bowel. As a result of his experiments he found not only that absorption of glucose takes place, and that the maximum is usually obtained in about one hour and twenty minutes, but that the absorption by rectum is by no means as rapid as when the carbohydrate is taken by the mouth. Thus the maximum quantity which he found after rectal injection in the blood was 0.03 per cent, whereas the maximum rise in blood sugar when it was taken by the mouth at the end of 30 minutes was 0.05 or 0.06 per cent increase. In other words, absorption by the mouth is about three times as fast and almost double what it is when the glucose is given by the rectum. On the other hand the blood sugar was found to drop to its normal level when the glucose was given by the bowel in about four hours, whereas when given by the mouth this occurred in a much shorter time. Tallerman quotes Grützner and Cannon as expressing belief that a large part of the absorption of rectal injections appears to take place in the small intestine, being pushed into that part of the bowel by an antiperistalsis. This conception does not appeal to us, however, because in man the ileocecal valve prevents the passage of the contents of the cecum into the small intestine unless a very large bulk of fluid under considerable pressure is injected.

Another point which is of considerable interest in connection with this research is the statement by von Noorden, that dextrin is of greater value than glucose, not only being cheaper, but because as a colloid it can be used in higher concentrations than glucose and is equally satisfactory, and, futhermore, its absorption will be continued over a longer period of time, so that the tissues are not flooded with sugar as freely as if glucose is used. This possibly is the explanation of the statement made by Ornstein, to which we have already referred, namely, that glucose given with starch is better absorbed than glucose given alone. The important point in this matter, however, is that Tallerman's research, combined with the observations made by others, would indicate that while predigested proteids given by rectum are of little or no value, carbohydrate injections so administered may be definitely relied upon, and this is the more important because in most cases in which nutrient enemata are believed to be necessary the patient is in greater need of nutrition through carbohydrates than nutrition produced by albuminous substances.

THE EFFECT OF HIGH TEMPERATURE ON THE ACTION OF DIGITALIS.

We believe that it is almost the universal experience of clinicians that while digitalis often produces remarkable effects in cases of valvular disease associated with ruptured compensation, it is in the majority of instances distinctly disappointing as a cardiac stimulant in the presence of acute infectious fevers, and while it is generally used with the hope that it may do good, it certainly often fails. One reason for this, doubtless, lies in the fact that the infectious process produces an acute or subacute myocarditis which so changes the susceptibility of the heart muscle to digitalis that it is unable to respond to the physiological action of this drug. This is certainly true in many cases of chronic myocarditis, and it is possible that the toxins of the acute infection may also directly antagonize the digitalis effect.

Many years ago the late Sir Lauder

Brunton, of London, pointed out that the presence of high fever prevented digitalis from slowing the heart by stimulating the pneumogastric nerves. Whether it be reflex effect or direct effect we do not know, but in some cases of acute infectious disease with high temperature we feel confident that the application of an ice-bag over the heart has been followed by the development of a digitalis effect which before the ice-bag was applied was lacking.

It is interesting to note that in a recent issue of the *Journal of Pharmacology and Experimental Therapeutics,* Hirschfelder and others report a research upon this subject, although curiously enough the conclusions which they reach are somewhat different from those which we have cited. Thus they have seemed to show that in animals in which the heart muscle was free from injury due to prolonged fever or toxemia, the factor of high temperature alone was sufficient to render it much more susceptible to the effects of digitalis than is the heart muscle when not exposed to a high temperature, and they therefore urge that great care must be exercised in using digitalis in large doses in patients with high temperature.

They quote Hart as having reported heart-block in the administration of three drachm doses of digitalis in cases of influenzal pneumonia, and state that this quantity is about half the dose in which similar effects might be expected in afebrile heart cases.

We believe that ultimately this matter must be settled by the study of patients suffering from acute infectious diseases by the aid of the electrocardiograph. Doubtless in some acute infections a partial heart-block is induced by the toxemia, and the administration of digitalis under these circumstances would prove just as harmful as would its use in cases of partial heart-block dependent upon a chronic endocarditis and myocarditis, whereas in other cases in which the toxemia possibly produces an auricular fibrillation the administration of large doses of digitalis, if it acts at all in the presence of fever, may be as advantageous as it is when auricular fibrillation develops as a chronic malady.

All of the facts now before us indicate once more that digitalis is a powerful drug, potent for much good when employed at the right time and in the proper dose, and equally potent for harm if abused; and naturally large doses when wrongly used are more likely to produce evil effects than smaller ones.

To put it differently, the general practitioner when tempted to employ digitalis for the relief of what he thinks is a feeble heart in the course of the acute infections should study the condition of the heart muscle as accurately as possible, just as he nowadays studies it when tempted to employ digitalis in the treatment of chronic cardiac trouble, and unless he takes this precaution, while some of his patients may be markedly benefited, if by good luck they are suitable cases for this drug, in other instances he will get disastrous results, and, happily for his peace of mind, unless his attention has been called to this matter, may attribute the results to the disease when in reality he should attribute them to a sad mistake.

CARDIAC MASSAGE.

Readers of the THERAPEUTIC GAZETTE will remember that during the last few years we have referred on a number of occasions to clinical reports which have appeared, chiefly in French medical literature, as to the value of cardiac massage in accidents complicating the administration of anesthetics for surgical purposes.

It will be recalled that this term "cardiac massage" has been applied to widely divergent methods. In some instances the practitioner has believed that he has resuscitated his patient by active and vigorous massage of the præcordium without any direct contact with the heart. In this instance any effects which are produced are probably reflex rather than direct. Others have massaged the heart, during abdominal operations, by using pressure through the

diaphragm, and still others have been so bold in desperate cases as to actually incise the diaphragm, push the hand through the incision, and so use actual pressure upon the heart, which was grasped by the fingers.

There can be no doubt that efficient massage of a heart which has practically stopped pulsating can reëstablish its beat. In 1893 the writer of this editorial contributed to the pages of the THERAPEUTIC GAZETTE a research, the expenses of which were paid for by the Government of Hyderabad, India, and in this research upon chloroform it was frequently found that after the heart's action had stopped and the blood-pressure had fallen to zero, if artificial respiration was established and the chest opened, massage of the distended cardiac cavities, the walls of which were fibrillating, would result in the emptying of these cavities and the reëstablishment of pulsation. At that time nothing was known of so-called auricular or ventricular fibrillation, but we note with interest that Levy in "Heart," vol. vii, No. 3, quotes Prus as having demonstrated that rhythmical compression of the ventricles associated with inflation of the lungs is an efficient means of restoring ventricular contraction, his research being reported as early as 1901.

In these experiments, carried out on dogs, Prus produced ventricular fibrillation by an electric discharge and restored a regular and energetic beat in five dogs out of 35. In 29 of them some degree of spontaneous beat was restored by persistent massage, but not sufficient to sustain the circulation. Levy in two dogs induced ventricular fibrillation by adrenalin administered under light chloroform anesthesia, but failed to get the results achieved by Prus. In one case a feeble ventricular beat was obtained after eleven and a half minutes of massage, but in the other instance it failed. Levy believes that the second stage of ventricular fibrillation is due to the fact that the ventricles have become asphyxiated through the fall of blood-pressure and that the effect of artificial respiration is to remove this condition. He also found that when resuscitation was achieved the beats are regular and apt to occur in proper sequence to the auricular beat. He employed cats in his experiments upon which these statements are based, and induced fibrillation by chloroform or the electric current. His results clearly show that ample artificial respiration is as important as cardiac massage.

The clinical deductions which should be drawn from his investigations, and those of others, are that the duration of the interval between the moment of syncope and the moment of massage, so far as the recovery of the heart's action is concerned, is closely related. He obtained successful results when applying massage not later than the first two minutes, the loss of time being more important because of the starvation of the nervous centers or their asphyxia than because of the condition of the heart muscle itself.

He joins to his report two clinical observations, one of which we have already referred to in an earlier editorial in the GAZETTE.

The first case quoted by Levy was that of a child of nine years, who was being operated on for umbilical hernia, the anesthetic being chloroform. At 12:30 the heart stopped; 25 minutes later subdiaphragmatic massage of the heart and artificial respiration were practiced. Three minutes after this a slight flutter of the heart was felt, followed in a few seconds by a vigorous beat, but sensibility never returned and the patient died in 20 hours.

Mollison's case was one in which not less than 13 minutes and probably 15 minutes elapsed between the onset of bad symptoms and the practice of massage. In this instance a child of six years was being operated on for tonsils and adenoids, the anesthetic being chloroform and ether mixture. At approximately 15 minutes after the heart stopped subdiaphragmatic massage was begun, and four minutes later approximately the heart commenced to beat. In this case artificial respiration was not performed, the patient remained unconscious for about seven days, was much improved in fourteen days, and eventually completely recovered.

A question discussed by Levy, which is of some academic interest, is how soon after cardiac arrest intercardiac clotting occurs. In animals it would seem to take place in about 36 minutes.

In conclusion, Levy expresses the belief that artificial respiration is absolutely essential when cardiac massage is practiced. He thinks that Sylvester's method is sufficient when there is no opening in the pleural cavity, provided it does not interfere with the proper performance of massage, but he recommends intubation of the larynx, the attachment of a tube and insufflation of the lungs of the patient by an artificial respiration apparatus or by blowing by another person. If no artificial respiration apparatus is at hand he even suggests that mouth-to-mouth insufflation may be practiced in an emergency. He also believes that even partial inflation of the parts is useful in such cases and emphasizes the fact that artificial respiration is not only advantageous because of its influence upon the circulatory system, but also because it serves to eliminate chloroform from the body. He believes that the value of the massage lies more in the production of an artificial circulation of oxygenated blood through the coronary arteries than upon the direct irritation of the heart muscle by handling, and points out that the successful performance of massage depends upon the efficient compression of both ventricles. Levy also insists that in order to prevent death cardiac massage should be instituted not later than five minutes from the onset of cardiac failure, although in the next sentence he states that two minutes is probably the outside limit of time which should be allowed for the chance of spontaneous recovery in man, after which the necessary operative procedures for adequate cardiac massage should be undertaken.

To sum up, therefore, Levy believes that cardiac massage should prove a scientific means of restoration from apparent death from chloroform syncope, whether this be the result of ventricular fibrillation or neglected overdoses.

THE RITUAL OF A SURGICAL OPERATION.

Under this caption Moynihan *(British Journal of Surgery,* July, 1920), than whom no surgeon is better fitted to speak from the standpoint of rich experience, deep study, and the gift of expression, formulates a method of procedure which while it contains nothing new, so clearly sets forth a rational surgical technique that it should be read and studied by every practitioner of the art.

His pronouncement begins with the statement that every operation in surgery is an experiment in bacteriology. The success of the experiment in respect of the salvation of the patient, the quality of healing in the wound, the amount of local or constitutional reaction, the discomforts during the days following operation, and the nature and severity of any possible sequels, depend not only on the skill but also upon the care exercised by the surgeon in the ritual of the operation.

The "ritualist" must not be a man unduly concerned with fixed forms and ceremonies, with carrying out the rigidly prescribed ordinances of the surgical sect to which he owes allegiance; but a man who, while observing with unfaltering loyalty those practices which experience and experiment have together imposed upon him, refuses to be merely a mimic bound by custom and routine. He must set endeavor in continual motion, and seek always and earnestly for simpler methods and a better way. In the craft of surgery the master word is simplicity.

The ritual of an operation commences before the incision is made, and may continue for a long period after the wound is healed. In the transition of a patient from ill health to sound health the operation itself is only one, though it may be the most important, of all the factors concerned in this fortunate event.

Moynihan further states that the possibility of the patient's own tissues furnishing septic organisms is so remote that it may be left out of the count entirely. It is an

excuse to condone rather than to explain the occurrence of infection.

The bacteriological experiment on the patient may be conducted with one of two intentions: the exclusion of all organisms from the wound; the destruction of all organisms reaching the wound, by a bactericide applied to the wound surfaces.

To speak strictly there is no "aseptic" surgery. In every operation some antiseptic is used on the surgeon's hands or the patient's skin. The terms are accurate enough if they are held to apply only to that part of the operation which begins with the incision of the skin. After this point the use of antiseptics in a "clean" case is rarely necessary, is often undesirable, and is almost always of greater harm than benefit.

In speaking of the results of an operation a surgeon may be a prejudiced witness as to his own efforts, and a bad judge of his own merit. When surgeons speak, for example, of "healing by first intention," one means a wound which heals within a few days, leaving a thin, straight, narrow line of palest pink. Around this line and the stitch-marks everything appears "cold." There is no redness, no swelling, no stiffness or induration, and at the line itself the most accurate apposition of skin edges is seen. There is no discharge from the wound. There has been neither local nor constitutional reaction following the operation. Another surgeon means a wound which is anything but straight; the edges are jagged, they do not meet accurately at every part, they overlap here and there; the line of healing is broad and irregular, raised and red, a sticky discharge oozes from the unapposed surfaces, and a scab may lie where this discharge has dried. The parts around are raised, tender, doughy, or stiff. The stitches seem to sink into the skin.

The cleaner and the gentler the act of operation, the less the patient suffers; the smoother and the quicker his convalescence, the more exquisite his healed wound, the happier his memory of the whole incident, to him probably one of the most important in his life. The results of our ritual are therefore expressed not only in the mortality—where the difference may be slight—but also in the quality of the healing of the wound, and in the quality of the recovery from the operation, in respect of security, rapidity, smoothness, completeness, and finality.

In the ritual of a surgical operation the mysteries are imposed not only upon the high priest and upon the acolytes, but upon the congregation also. Every visitor to an operation theater takes a part, however remote, in the operation. He is gowned, masked, and his head covered with a cap nowadays in all clinics. But dirty boots and soiled trouser legs, conveying mud, dust, and fecal matter from the streets, are often unnoticed. If the wearer of them moves about the theater freely, or goes from one theater to another, the organisms carried in the drying filth are scattered broadcast, as the simplest experiment will prove. Large canvas overalls for the boots and the lower part of the leg, tying just below the knee, as a sort of legging, will afford ample and secure covering to this possible source of infection.

The method of the preparation of our hands and arms is important. It is still a common thing to see hands washed in a basin of still water. The moment the hands are soaped and rinsed the water is polluted by the dirt washed off the skin. If the washing is continued it is obvious that the hands are being constantly reinfected from the contaminated water. If the water is emptied away, and fresh poured in, the basin, being polluted by the water it formerly contained, defiles the fresh water. And it is really not uncommon to see a piece of soap used to lather the hands laid down and picked up again, regardless of the fact that each contact of the soap with something else is a possible method of soiling it. The best of all plans is to wash under running sterile water. Water can be boiled for a quarter of an hour, and cooled sufficiently for use in five minutes. Over the tank is placed a tap for refilling.

Almost all commercial soaps are sterile.

The outer surface of course may be polluted, but when this is washed or scraped away the exposed fresh surface of the soap is sterile. Two methods of using soap are simple and satisfactory: to use a tablet of any household soap which has been lying in a solution of acrosyl for half an hour; or to sterilize some green soft soap in a flat dish in the autoclave, and to rub off, time after time, with a sterile gauze swab, enough of the soap to form a good lather. After washing for not less than fifteen minutes, the hands should be gently rubbed with gauze wet in spirit and biniodide solution, or in a solution of acrosyl, which is the antiseptic least likely to damage the skin.

About the wearing of gloves a good deal may be said. Often they are a mere fetish. How often are gloves put on without their outer surface being touched or stroked by a bare hand? How often are they considered rather a protection for the surgeon than for the patient? Gloves may be sterilized by boiling or be placed in the autoclave with the dressings and swabs and used dry. The advantage of the dry glove is that it is more comfortable to wear during a long list of operations, and that the hand being covered by a dry sterile powder is kept free from moisture. A chance puncture of the glove does not involve the escape of a possibly contaminated fluid into the wound. Gloves should be kept on the hands till the dressing of the wound is complete, and until the coat and sleeves are removed. If gloves are properly sterilized and properly put on, the covered finger may be used to explore a knee-joint or anywhere else with impunity.

Above the gloves worn by all those directly engaged in the operation no bare arm should be seen. Either a long-sleeved gown should be worn, or sleeves which fit firmly round the wrist, there to be covered by the cuff of the glove.

An ideal skin disinfectant should be cheap and easily accessible, simple in its application, non-irritant, capable of penetrating the skin to some depth; it should be effective in destroying in a short time all of the organisms which are found on or in the skin, and it should do nothing to prevent or delay the clean and speedy healing of the wound.

The skin disinfectant most commonly employed is iodine. It is applied in varying strengths, and in different vehicles—spirit, chloroform, acetone, benzine, etc. The tincture of iodine is the form which is most often used. Both experimentally and clinically the method is clearly of the second rate. The work of Tinker and Prince, Hunter Robb, Stanton, and others shows that even when the iodine is allowed to remain on the skin which is tested, sterilization is not always indicated by the culture tube; if the iodine is removed by a solution of potassium iodide, and the skin washed with sterile water and examined, infection is demonstrable in over 50 per cent of cases. A very large proportion of the iodine used often disappears from the skin before the operation is completed. There is nothing then to recommend iodine but the ease and rapidity with which it can be applied and its coloring of the skin; its efficacy is far less than is required, and it is a powerful irritant. Iodine, to be effective, must be applied on a dry skin, which often means a dirty skin. Picric acid in alcoholic solution of a 3 per cent or 5 per cent strength gives better results than iodine; but it does not penetrate deeply, and it is not of sufficient bactericidal value. The wounds are, again, not up to the highest standard in a large number of cases.

By far the best method of preparing the skin is carried out in three stages. Abundant washing with soap and water, preferably ether soap; gentle friction with biniodide of mercury and spirit solution 1 to 500; drying; followed by the application for two to three minutes of Harrington's solution. When the towels are fixed round the operation area a further application of Harrington's solution is made; and throughout all operations the skin is covered with towels so that no friction of the hands against it is possible.

The hands should not touch the skin at all; viscera should not be allowed to lie

upon it, and the rubbing of instruments against it must be avoided. As soon as the incision is made, cloths of several thicknesses of gauze or toweling are fixed to the skin edges and dip well into the wound. If these "tetra" cloths lie loosely on the parts around the wound, they ruffle up during the movements of the surgeon's hands. If powder is dusted on the under surface of them it is soon found to lie in the wound. The towels must therefore be held at points distant from the wound, so that they are kept stretched and fixed throughout the operation. When they are removed at the conclusion of the operation, the skin covered by them is washed over with spirit and with Harrington's solution before any stitches are inserted.

The wound is made by a firm, clean sweep of the knife. All vessels are clipped if possible, as in a hernia operation, before being cut, but certainly the moment they are cut. Most of the clips made seize not only the vessels but a mass of tissue surrounding them. When ligatures are applied, all this tissue is strangled in the ligature, and has to be digested by leucocytes in the wound. The tips of artery clips should be narrow, almost pointed.

When glands of the neck, or of the breast in a case of carcinoma, are removed, gentle traction in one direction by the surgeon, and in the opposite by his assistant, will reveal a fluffy layer of thin areolar tissue, the "white line" along which dissection can proceed very easily and quickly, and with the immediate disclosure of all the vessels which must be seized. This involves the application of many clips, but the wound should always be kept dry and unstained by blood. It should be our ideal to complete such an operation without staining the towels round the wound.

Though traction is necessary in gland and goitre operations, it must be avoided in abdominal work. The forcible and merciless retraction of the abdominal wall throughout a long operation cannot fail to cause shock and suffering afterward. The best retractor is the gentle light hand of a well-trained assistant, used mercifully when it must be used at all. But with the adequate incisions, retraction is very little needed during the greater part of most operations.

Dissection may be carried out in two manners: by the knife, or by "gauze stripping." If by the knife, the movements should be short, sharp, close together, so that if recorded on a moving drum the picture would resemble a "feather edge." And the knife must be sharp. Big, heavy, clumsy movements with a dull knife hurt the patient, and leave the parts less fitted to heal. Throughout the operation there must be no undue exposure of parts. In a large dissection, such as that required in removal of a cancer of the breast, the dissection extends from the axilla to the umbilicus, and from the opposite pectoral muscle over the latissimus dorsi. With skin flaps turned back, the bared area is very extensive; it should never be seen as a whole. As one part of the dissection is completed, hot moist cloths are placed over the raw surface to prevent drying and chilling, and the chance of contamination. Similarly, in abdominal work, only that part of the operation field should be seen with which the operator is at the moment engaged.

Contamination may occur during an operation, and therefore the various clips, scissors, retractors, or other instruments should be resterilized as often as necessary. If, for example, a pair of scissors are used to open the intestine in a case of gastroenterostomy or colectomy, or needles to suture viscera together, they are at once discarded, and never used again till they have been boiled.

In operations for malignant disease, frequent sterilization of instruments is most necessary. Every instrument used in this dissection—knife, clips, scissors—may possibly be brought into contact with a cancer cell. When once used it is therefore laid aside, and not taken up again till it has been reboiled. Cancer cells, as Ryall and others have shown, can be grafted on to the patient's own tissues and develop a new deposit of cancer. It is obvious that the

graft may be carried on any instrument, or on the gloved hand.

As regards the material used for ligatures and sutures which must remain within the wound, certain conditions are essential. Such material should, ideally: Achieve its purpose—be sufficient to hold parts together, close vessels, etc.; disappear as soon as its work is accomplished; be free from infection; and be non-irritant.

The only material which can be made to fulfil these conditions is catgut of the small numbers. Catgut can be sterilized perfectly. The method of Claudius, which directs that the catgut should be soaked in a solution consisting of iodine 1 per cent and potassium iodide 1 per cent in water, ignores the fact that with such a proportion of iodide of potassium all the iodine is not dissolved; much of it lies inert at the bottom of the vessel. Moynihan uses a solution made in accordance with their atomic weights, iodine in a strength of 1 per cent and iodide of potassium in a strength of 1.75 per cent; the whole of the iodine is then taken up, a darker and stronger solution results, and catgut soaked in this for ten days or more is almost black in color, and so strongly permeated by iodine that it is exceedingly difficult to infect it. Silk for intestinal sutures is not necessary. An unabsorbable suture used to effect the junction in gastroenterostomy is possibly a factor causing the development of a jejunal ulcer. But thick chromic catgut also will remain for years at a suture line in such a case.

The most important person present at an operation is the patient. This is a truth not everywhere and always remembered.

The preliminary use of scopolamine, atropine, and morphine, or of omnopon, is a valuable help. One dose of about 1/100 or 1/150 grain scopolamine and 1/6 or 1/4 grain morphine is needed, according to the patient's age, size, etc. This is given about three-quarters of an hour before operation. In a private hospital the blinds should then be drawn down, the room darkened, and the patient encouraged to sleep. No talking is allowed. The nurse remains in the room, but is warned not to speak, and of course no friends are then permitted to see the patient. When the patient is taken to the operation theater as quietly as possible, a towel covers the eyes and the operation room itself is dark. No conversation is allowed in the theater, and only the anesthetist and one nurse, or possibly two nurses, remain. Everything is kept as quiet and orderly as possible. There are very few occasions indeed when shock results from an abdominal operation properly conducted, when the patient is kept warm on the table by one device or another, and when the gentlest handling, the most careful hemostasis, and adequate protection of parts have been exercised.

Every detail in every operation is of importance, and should be conceived, practiced, and tested with unwearying patience by the operator himself, and by him in conjunction with all his assistants.

In all the movements of the surgeon there should be neither haste nor waste. It matters less how quickly an operation is done than how accurately it is done. Speed should result from the method and the practiced facility of the operator, and should not be his first and formal intention. It should be an accomplishment, not an aim. And every moment should tell, every action should achieve something. A manipulation, if it requires to be carried out, should not be half-done and hesitatingly done. It should be deliberate, firm, intentional, and final. Infinite gentleness, scrupulous care, light handling, and purposeful, effective, quiet movements which are no more than a caress, are all necessary if an operation is to be the work of an artist, and not merely of a hewer of flesh.

EMPYEMA.

In spite of the enormous experience in the treatment of empyema incident to the many cases of pleural involvement resulting from grippal and mixed infection of the lung, and from war injuries, and in spite

of the many studies on the part of careful internists and skilled surgeons made upon these cases both clinical and post mortem, there is as yet no complete accord upon the part of the profession as to appropriate treatment, such, for instance, as obtains in regard to peritonitis.

It is universally recognized, and has been for a long time, that empyema is practically always a secondary infection similar in this respect to peritonitis. As pointed out by Wilensky (*American Journal of the Medical Sciences*, September, 1920) the primary conditions can be roughly grouped into (1) the meta- or postpneumonic empyemata; (2) those occurring by continuity from a neighboring perforating abscess, and among these abscesses of the lung take first place; and (3) the metastatic forms following a focus of suppuration at a distant point, or taking the form of fixation abscesses in the course of established and continuing bacteremias.

The empyemata which one meets most commonly are those following pneumonia. In children a form occurs in which both pleura and lung simultaneously become infected and involved.

Meta- and postpneumonic forms of empyema form about 69 per cent of the total number of cases encountered.

About 2 per cent of the empyema cases under ordinary circumstances complicate abscesses in the immediate neighborhood of the pleura. This group includes only those which are formed by direct extension or rupture of the suppurative process. Very few of these, indeed, are derived from the subdiaphragmatic space; the largest number are derived from the rupture of pulmonary abscesses.

Concerning exploratory aspiration, Wilensky believes this of high diagnostic value. He alludes to the sudden deaths which occasionally occur and for which no adequate explanation has been given. The needle should be inserted in the very center of the area thought to contain fluid. At times it happens that pus is withdrawn by the needle when no empyema exists. This is probably because the needle has entered a large bronchus and withdrawn some of the secretion.

The Roentgen ray gives more valuable and accurate findings and is greatly to be preferred to the needle in all cases of localized empyemata whether the cavity be relatively small and obscurely placed or whether it be limited to one of the aspects of the thoracic wall. Frequently the ray will detect other unsuspected lesions, for instance associated pneumonic foci, in the same or opposite lung.

All empyemas have gone through a stage in which the exudate was a relatively clear fluid, which, as time goes on, shows a progressive turbidity and passes finally into the stage in which the exudate is frankly purulent.

As a general rule the fluid is heavily charged with bacteria, and the abundance of the latter varies inversely with the length of time since the onset of the effusion; the longer the fluid remains in the chest the greater the tendency there is for the bacteria either to disappear or to lose in virulence.

Experience has shown that the proper time for operation is when the exudate is distinctly purulent and when the initial toxemia has abated or has been overcome, or when perhaps the original pneumonia has disappeared.

Preliminary aspiration has been shown to be highly helpful and should be repeated as often as general or local signs call for it. A recrudescence of fever is a very good guide for the repetition of the procedure.

Operation should not be done until the fluid is very purulent and the toxemia has completely disappeared. At times repeated aspirations are themselves curative. This is particularly the case in infants and young children. Wilensky favors intercostal incision rather than rib resection, holding that adequate drainage can always be secured. As to rib resection it is not infrequently followed by a more or less diffuse osteomyelitis. When the cartilage becomes involved it never heals until every bit of the cartilage is removed down to the

healthy portion of the bone to which the cartilage is attached.

An important advantage of intercostal incision is that the operation can be done in bed. The drainage opening in the chest wall should not be any larger in caliber than the diameter of the main bronchus entering the lung. The simplest form of drainage apparatus—an ordinary rubber tube—is the best. None of the various forms of drainage apparatus offer any advantage. The addition of a suction apparatus in the after-treatment, for the purpose of aiding the constant evacuation of the chest, is a valuable adjunct to the treatment.

Wilensky speaks with modified enthusiasm of the Carrel-Dakin treatment. His method is as follows: A large drainage tube is coupled with the suction apparatus. The tube leading from the chest to the collecting bottle is made to connect by a T-tube with a reservoir containing the Dakin solution. The total capacity of the empyema cavity is measured with water and noted. The amount of Dakin's solution which is instilled at two-hourly intervals is equal to a few cubic centimeters less than this measured capacity. At the appropriate time the suction is blocked off with a clamp and the Dakin solution is allowed to run in to the amount indicated. Inasmuch as the effect of the free chlorine liberated from the solution is only operative for a very few minutes, there is no necessity for allowing the solution to remain in the chest for any length of time, and at the end of fifteen minutes the suction is reëstablished and the entire contents are evacuated from the thorax. The suction is allowed to continue until the next instillation. If desirable the procedure can be repeated at hourly, instead of two-hourly, intervals.

The use of any method of irrigation is a new departure from the custom maintained up to the time of publication of the studies of Carrel and Dakin. One has always been taught that irrigation of any kind is dangerous when employed within the chest and from time to time serious consequences have been reported. The knowledge has, perhaps, been a deterrent to the use of Dakin's solution in some quarters and has encouraged the use of small quantities following the use of other intrathoracic procedures, especially puncture and aspiration of the chest.

There is a great difficulty in making an accurate determination of the sterility of the cavity. The smear method is not reliable, not only because of the possibility of error while looking through the smear, but because it is common knowledge that many colonies of bacteria will grow on media when no organisms are visible in the smear. Cultures are always necessary. The sterility of the outer wound is easily demonstrated; within the cavity it is not possible to reach all parts for specimens; and while seemingly all that are obtained are sterile, other foci may be present which harbor many organisms. It is true that an absolute sterility is not necessary for the secondary closure of the wound.

As soon as the sterility of the cavity is established with a reasonable degree of certainty the practice is to discontinue all forms of irrigation or other treatment. The immediate suture of the outer wound is perhaps not advisable, owing to the frequency with which the wound reopens to permit the discharge of retained pus. It is much better practice, instead, to simply cover the wound with a dry dressing and to permit it to heal by granulation. The outer wound closes rapidly; a larger or smaller cavity—a pneumothorax—remains which, when truly sterile, does no harm; after a time the pneumothorax becomes absorbed and the cavity becomes obliterated. The pneumothorax shows no clinical evidences either subjectively or objectively. Permanent healing of the cavity must necessarily occur by complete obliteration. This probably occurs as a creeping adhesion of the adjoining parietal and visceral edge of the lining granulation membrane.

Under the newer methods of treatment

there has been a pronounced improvement in the results obtained with operations for empyema. Less frequently than heretofore the sinus in the chest fails to close within a reasonable length of time. Difficulties arise with the interpretation of the latter term, for a length of time which is "unreasonable" to one man is regarded with more or less indifference by another. Lilienthal waits only a very short time after doing the primary intercostal incision —minor thoracotomy—before he proceeds to do his larger operation of major thoracotomy; he believes the secondary procedure necessary in a great many of the cases. Recently Aschner, who is associated with Lilienthal, expressed the opinion that the secondary major thoracotomy is not necessary as often as was first believed.

There are a number of factors which interfere with the closure of the thoracic sinus after operations for empyema. Practically all of these functionate by constantly reinfecting the cavity which is to cicatrize, and many of them are those which interfere with the proper sterilization of the wound with Dakin's solution. Over some of these we have almost perfect control, as, for example, a badly carried out drainage or an osteomyelitis of the resected rib. Over others we have only partial control; such would be those empyemata which are not simple cavities but in which the main cavity is complicated by subsidiary loculi; the drainage of the latter is at best imperfect.

The greatest obstacle to healing is the presence of a bronchopulmonary fistula; over this impediment we have no control at all. The fistula may be so small as to readily escape demonstration.

Recurrences of empyema are fairly common. The essential cause for this accident is again an incomplete sterilization, or a reinfection, of the cavity; and the causes for the latter include: (1) Incomplete obliteration of the original cavity; (2) a bronchial fistula; (3) rib sequestra; (4) islands of dormant bacteria in the walls of the empyema cavity; and (5) the retention of foreign bodies.

FACTORS ENTERING INTO DELAY IN THE SURGICAL TREATMENT OF CANCER.

It will be remembered that eight years ago the Pennsylvania Medical Society appointed a committee for the purpose of studying the cancer problem, with a view to the lessening of its toll of mortality, this action being indicated by the progressive and rapid increase in the number of deaths from cancer reported. One, and perhaps the most important, finding of this committee was to the effect that, by and large, a patient afflicted with superficial cancer delayed consulting his physician twelve to fourteen months, and that the physician delayed practicing or advising surgical treatment for another twelve months. The delay was a little greater when the cancer involved the internal organs. This summarizes Wainwright's important contribution.

Gibson of New York pointed out that between 80 and 90 per cent of cancer cases are beyond surgical help at least in the form of radical cure when they apply to hospitals, and that one-half the cases have not been properly diagnosed by their doctors. A later study in the same clinic reported 50 per cent of the cases beyond surgical treatment at the time they applied for treatment, and the average lapse of time between the period when the patient was first seen by a doctor and came to the hospital was between eight and nine months.

Simmons in 1918, taking up the study of cancer of the breast, including in his series 282 cases, showed a somewhat more prompt action upon the part of the physician in referring his surgical cases. Simmons and Daland's present report *(Boston Medical and Surgical Journal,* Sept. 2, 1920) shows a still further step in the right direction. As might be expected the average age of these patients was something over fifty years. Neoplasms of the breast and cervix come something earlier than those of the buccal mucosa; prostate and skin something later. The youngest patient was fourteen, the old-

est eighty-three. There was no pronounced numerical disproportion between the males and females. The average duration of the total number of cases was twelve and a half months, subject to wide variations. From the time of the onset of symptoms and the first consultation with the physician, five and a third months elapsed. This is in favorable contrast to the fourteen months reported by the Pennsylvania Commission eight years ago. The chief reason leading to consultation with the physician was the rapidity of the growth. The quick mucous membrane lesions led the patient to the physician in about two months, cancer of the prostate in about ten months, of the breast in something over eleven months; slow-growing skin cancers something under twelve months.

The first symptom was tumor or ulcer in 36 per cent of the cases, pain in 25 per cent, what may be termed symptoms peculiar to the organ in 18 per cent, and miscellaneous in 21 per cent.

No rule can be given to the laity or to the physician as to the first symptom of cancer, although it will not be difficult to educate the public to observe the first symptom in the organs commonly affected. This will materially lessen the number of cases in the hospitals as regards operative cure when first seen.

The first symptom of cancer is the inveterate resistance of its characteristic lesion to treatment.

The average delay on the part of the physician before advising operation was three months. The greater number of physicians suspected or recognized the condition promptly and sent the patient to the hospital for operation. A few did not. In cancer of the breast there was practically no delay. In cancer of the buccal mucosa the average delay was two months, which is too long.

It is evident there is not a universal recognition of the fact that a painless and persistent ulcer of the tongue is usually cancer; that a flow coming on several years after the menopause is usually due to cancer; and the only way to make an early diagnosis of cancer of the intestines is with the *x*-ray.

The average delay on the part of the patient after operation was advised was three weeks; this is practically no delay.

Of all cases admitted to the hospital less than one-half were considered suitable for an attempt at cure by a radical operation, and in these cases there was an operative mortality of 15 per cent, confined chiefly to procedures on the gastointestinal and the genito-urinary tracts. In 28 per cent of the cases no operation was performed or exploration only, while in 27 per cent a palliative operation, such as gastroenterostomy, cauterization of the cervix, or tracheotomy, was done.

The operative mortality following palliative operations was about the same as that following the radical ones. Eleven per cent of the cases gave a history of cancer occurring in the immediate family. This suggests that heredity as a predisposing factor is of little moment.

These figures indicate a profession better trained in diagnosis and more trusting in the efficacy of surgical skill. It is recognized that no individual should die of an external cancer. This because it is at first local and can be locally and completely removed, usually by a trifling and nondisfiguring operation. The deaths are due to this failure to secure local treatment at the time the disease is still local, and lessened mortality will be incident to early recognition and prompt application of therapeutic means. That both the profession and laymen are traveling in this direction is conclusively proven by Simmons and Daland's most helpful study, and that we have still much to attain by a further development of early recognition and prompt treatment is obvious.

Progress in Therapeutics

Medical Therapeutics

Mild Chronic Nephritis in Children.

HILL, in the *Journal of the American Medical Association* of August 28, 1920, quotes a French writer, Hutinel, who wrote ten years ago as follows: "Let me insist that in dealing with these nephritic children it is especially important to pay attention to careful nursing and hygiene. It is by these measures that the malady is cured, or, in the more serious forms, that life is prolonged. Use drugs as little as possible. Especially is it important not to irritate the kidney, and to forbid the patient eating any substances whose end-products he cannot eliminate. It is necessary, moreover, to do away with any coexisting infection, however insignificant it may appear, and to watch carefully the mouth, digestive tract, respiratory apparatus, and skin. In a word, one must remember that the kidney is delicate, and spare it as far as possible."

These words sum up most succinctly in one paragraph the general principles of treatment of mild chronic nephritis in childhood.

Hill believes that general hygiene is of far more importance than the diet. The lives of these children should be most carefully supervised. In this modern day all of us are continually seeing children who are overtired; overtired from too much school, too much music lesson, too much excitement, too much everything. The strenuous life must be strictly forbidden to these nephritic children. They must be treated along the same lines that have been insisted on for other underweight children —plenty of rest, both physical and mental, and plenty of suitable food. The question of sea or fresh water bathing often comes up, and Hill has had a good many mothers with nephritic children ask whether this may be allowed. He does not see any reason for forbidding a nephritic child to bathe in warm water, that is 70° F. or over, but should certainly forbid it if the temperature of the water was below this. Chilling of the body surface is not good for a nephritic, and it is not unusual to have hematuria or albuminuria increase if this occurs.

The tonsils and teeth should receive very careful attention. Certainly if the tonsils have been the cause of the nephritis, as they undoubtedly are in a great many cases of this mild type, they should be removed, and even if they have not been apparently the original cause of the trouble, they should be removed if there is the slightest suspicion that they are at all diseased. Although dental infection is probably not at all a common cause of nephritis in children, the teeth of a nephritic child should be attended to, and any existing focus of infection eradicated. It is of the utmost importance to guard the child against all sorts of acute infections, such as colds, bronchitis, or measles, as often these conditions, while not serious in themselves, may cause a flaring up of the nephritic process. The kidneys of these children are hypersusceptible, and they should, therefore, not be called on to excrete toxins of any sort. If an acute exacerbation occurs, the child is of course put to bed, and is treated the same as an acute case would be.

While it certainly would not be wise to allow an unrestricted diet to these children, it is a worse mistake to restrict it too closely. There is no reason for omitting meat entirely from the diet, nor is there any good evidence that red meat is any less desirable than white. It is not at all certain what the minimum protein requirement of any child is, but it is undoubtedly a considerable amount, and in a long-

drawn-out condition, such as chronic nephritis, there is no necessity of depriving the child of meat. Meat once a day will certainly do no harm. Hill does not believe in meat soups, as their food value is practically *nil*, and it is possible that the kidney might be injured by the considerable amount of extractive material they contain. There does not seem to be, however, any actual proof that meat soups do harm, though all writers on nephritis are agreed that they should not be given. Epstein's high protein diet does not come into consideration here, as this is a nephritic with little or, at most, moderate albuminuria; and large amounts of albumin are not being lost from the body. If a child likes his food very salty, this taste should be discouraged; otherwise there is no especial necessity for salt restriction. For the severe cases of chronic nephritis with edema a low salt intake is, of course, desirable.

Water is one of the best therapeutic agents for a great many diseases, and a nephritic child without edema should be encouraged to drink water in order to keep his urine at a low specific gravity, and to dilute the products that are excreted through it.

The diet of these children may be thus summed up: meat, fish, or eggs once a day; no meat soups; a moderate salt intake, and plenty of water. Otherwise the diet can be the same as for any other child.

The prognosis of any diseased condition is what, after all, interests the patient most. There are three prognostic possibilities to be considered in mild chronic nephritis. First, the kidney may recover entirely, after a period of several years' albuminuria; secondly, a severe and fatal chronic nephritis with large amounts of albumin in the urine, and edema, may supervene; and thirdly, contracted kidney may develop, giving rise to the clinical picture known as chronic interstitial nephritis. The first two of these possibilities may occur, but he has followed no case long enough to be sure of the third. The reparative power of a growing child is remarkable, and it is quite possible to recover entirely from this mild type of nephritis. Hill has seen one patient apparently recover after four years of albuminuria, and another after two. On the other hand, not a few cases get worse, particularly after each acute exacerbation, and on the whole the chance for recovery is probably not as good as for the development of a severe nephritis in the course of time. The functional tests are of considerable value in prognosis. Repeatedly low phenolsulphonephthalein tests usually indicate a bad prognosis, and yet he recalls one girl who never has had a phenolsulphonephthalein test above 40 since the development of her nephritis, and who is still alive and apparently getting on very well after five years.

Normal phenolsulphonephthalein tests are not of much value in prognosis, as it is possible for severe kidney damage to exist with phenolsulphonephthalein outputs of from 60 to 70 per cent. If a child has a normal two-hour test, on the other hand, his kidneys are probably only slightly damaged, as this is a very delicate and reliable test. An abnormal two-hour test, with a considerable degree of fixation, means a damaged kidney, but not necessarily a severely damaged one. By the combined information which these two tests give us it is possible to get a fair representation of the kidney's functional power. In acute nephritis it is possible to estimate the severity of the kidney damage by the general condition of the child—in the mild type of chronic nephritis, when the child looks fairly well, and when the urinary examination does not tell much regarding the degree of kidney damage, the functional tests may help a good deal. As Sir James McKenzie once said, prognosis of chronic disease is what most of us know least about, as we often lose track of our patients after a few years, and it would be necessary to follow a large number of these cases over a period of at least ten years in order to have any really adequate idea concerning their prognosis.

Spastic Constipation.

In the *New Orleans Medical and Surgical Journal* for August, 1920, PERRET states that constipation is undoubtedly "the commonest ill that human flesh is heir to." Important as the condition is, it is not usually accorded the consideration which it deserves. It is such a frequent complaint, and as the evil effect resulting from it is not always immediately evident it is not taken seriously.

Again, as the causes that produce it are so numerous and varied and not always at once clear, many practitioners content themselves by dismissing the patient with a prescription for a purgative. The natural result is that frequently not only is the trouble not cured but often aggravated.

The object of his brief paper is to show the necessity of making a correct diagnosis, if we wish to cure the patient. Lack of care is the cause of more mistakes than lack of knowledge. If we take the trouble to obtain a good clinical history, make a thorough physical examination, and submit the gastrointestinal tract to a barium meal examination with the *x*-ray, we ought to be able in the majority of cases to arrive at a correct diagnosis.

Careless, slipshod therapeutics will avail us but little, if the cause of the constipation is due to a lack of gastrohepatic secretion. It is evident that drugs acting on the intestines will not do any good; again, if the trouble is due to atony of the bowels, antispasmodics will not help. Some cases are due to reflex causes from a diseased appendix, others to kinks which may call for surgical intervention. Hence the necessity for getting at the bottom of the trouble and trying to remove it.

No attempt is here made to list all the causes of constipation which may be found in any text on the practice of medicine.

The importance of the spastic type of constipation, which is well recognized, is not often enough borne in mind, with the result that these cases are often missed. With the more frequent use of the *x*-ray, however, more of these cases are being discovered. Of course it may not be practicable for every one to have access to an *x*-ray laboratory, or the patient may not be able to afford to pay for such an examination. In such cases where we suspect spasmodic constipation we ought to try the therapeutic test with antispasmodic drugs, the best of which is tincture of belladonna.

Spastic constipation may be due to a marked local vagus stimulation or to an increased irritability of the neurones supplying the intestinal muscles. Reflex causes are diseases of the eye, lungs, appendix, stomach, liver, gall-bladder, pancreas, kidneys, etc. The stimulus is carried by means of the vagus nerve, hence the value of drugs of the belladonna group which antagonize its action.

Carminative Action of Volatile Oils.

GUNN, in the *Journal of Pharmacology and Experimental Therapeutics* for August, 1920, states: (1) The carminative action of volatile oils can best be explained by their relaxing and inhibiting the movements of plain muscle. (2) Their other effects on the gastrointestinal tract may be explained by their local irritant action, by reflexes arising therefrom, or possibly by acceleration of absorption.

A Plea for the Rectal Examination in Labor.

MONASH, in the *Illinois Medical Journal* for August, 1920, states that in actual practice 90 per cent of all normal labors can be conducted without a vaginal examination. The routine pelvic measurements should have, of course, been taken during pregnancy, and the patient goes into labor with the diagnosis of presentation and position determined by external or abdominal palpation. Therefore no vaginal examination is necessary. The fetal heart action is watched by frequent auscultation. The rate of progress of labor can often be measured by external signs, and to intelligently follow the course of the labor, pelvic

exploration by the finger in the rectum gives all the information desired. The degree of effacement, the size of the dilating cervix, the degree of engagement of the presenting part, the presence or absence of the pouting bag of waters, the presence of the forelying or prolapsed cord, placenta previa, abortion in progress—all these and more can be determined.

The technique of preparation for rectal examination is infinitely less complicated than for vaginal examination. The sterile rubber glove is slipped on and anointed with a sterile lubricant and the exploration made. The presenting part is passed down by the external hand above the symphysis. After some experience one becomes very proficient, and the educated finger is soon able to determine the pelvic obstetric findings quite as definitely as by the vaginal route. With the softening and relaxation of the sphincter ani and levator ani during labor the finger meets little resistance and causes no pain. Exceptionally where the examination per rectum is unsatisfactory or indefinite or inconclusive, as in breech or face cases, a vaginal examination after proper aseptic preparation should be made. In the experience of Monash it is a rare thing to make a vaginal examination in a normal case, and often in spontaneous labors the course is satisfactorily watched throughout by abdominal examination alone or combined with rectal exploration.

In operative cases, such as one requiring forceps, the progress of the labor is followed by the rectal finger, and only just before the application of the forceps and after thorough aseptic preparation is the vaginal examination made. Furthermore, by means of the routine rectal examination the vagina is not invaded and a pubiotomy or a late Cæsarian section may be done without fear of a preliminary infection by a previous vaginal examination.

At the Chicago Lying-in Hospital internes watching labor cases are directed as follows:

Insert the lubricated gloved finger gently as far as it will go. Examine as follows:

1. Head or breech? Or what?
2. Position of presenting part?
3. Is presenting part engaged?
4. Where is the cervix? How much effacement and dilatation?
5. Is the bag of waters ruptured?
6. Is the cord prolapsed or are there other anomalies present?
7. If head is not engaged why is it not? (Contracted pelvis? tumor? scars? placenta previa?)

Caution.—Do not handle rectum roughly, and be careful in palpating tumors as you may push your finger through into the vagina. Record findings on labor record immediately after examination, and report to physician in charge in private cases.

At the Chicago Lying-in Hospital Dispensary, where thousands of patients have been confined in tenement homes, the attending obstetricians, internes and students all use the rectal examination in labor, learning and applying this method with ever-increasing facility and expertness, and with a definite and demonstrable reduction in incidence of subsequent temperatures as compared with a previous period of years when the vaginal examination was permitted.

Practice with this method makes for efficiency. The educated finger soon becomes skilled and gives most accurate information. This route is so easily tried out and has so many points to its credit that those who have become proficient in this procedure predict its general adoption.

The advantages of this method are:

Rectal examination combined with abdominal palpation in pregnancy and labor is an efficient substitute for vaginal examination, and is compatible with the intelligent management of childbirth in 90 per cent of all normal cases.

Rectal examination before, during, and after labor, as well as in miscarriage and premature labor, marks a distinct advance in the prevention of puerperal infection.

Rectal examination may be repeated at frequent intervals without the slightest harm to the patient, while the repeated

vaginal examination in the light of modern aseptic management is to be condemned.

Rectal examination is more easily done and with the least preparation of the patient when the examiner wishes to determine whether the patient is in labor, and if it is safe for him to leave or necessary to remain at the bedside. It is a time-saver. It is practically painless. In border-line cases in which Cæsarian section is considered it presents the advantage of an uninvaded vagina.

The obstetrician who examines by the rectal route enjoys a justifiable peace of mind and freedom from censure if his patient subsequently develops fever.

Acute Mastoiditis.

In the *Chicago Medical Recorder* for August, 1920, TIVNEN states that there is a unanimity of opinion among observers that the majority of acute middle-ear suppurations involve to a greater or less extent the mastoid cells. Politzer, from numerous post-mortem examinations, concludes that in every acute middle-ear suppuration pus is present in the pneumatic cells of the mastoid. To what extent this mastoid involvment shall progress depends upon the thoroughness, promptness and correctness of the treatment of the primary disease, nature's provision for drainage of the cells involved, effectiveness of measures adopted to promote drainage, the character of the invading microörganism, and the quality of the tissue resistance.

A reasonable doubt often arises as to the wisdom of instituting an immediate operative procedure on the mastoid. The paramount desire to save the patient unnecessary operation justifies a resort to abortive measures in all such cases in which operation on the mastoid is not clearly indicated. It is important to recognize that a mastoiditis, secondary to a middle-ear suppuration caused by influenza, diphtheria, scarlet fever, tuberculosis, or syphilis, rarely is amenable to abortive measures, but usually requires the mastoid operation. The abortive measures comprise: free drainage, local depletion, application of cold, rest, regulation of diet, and attention to the bowels.

Free drainage is best secured by an early free incision of the drum membrane. Puncturing with a spear-shaped instrument is practically worthless; the small opening thus produced closes quickly and fails to provide the avenue necessary for free drainage. A free incision over the most bulging portion or in the posterior half of the drumhead, extending along the posterior border of the drum from a point opposite the stapes to the lowest point of the membrane, should be done. To this is often added a prolongation of the incision above and outward along the superoposterior wall of the canal, a distance of one-quarter of an inch. Irrigation of the external canal with one-to-five-thousand bichloride solution should precede the operation. A general anesthetic, nitrous oxide or ether, is necessary in children or very nervous individuals. Instilling a few drops of a mixture containing cocaine hydrochloride 5 to 10 grains, alcohol 1 drachm, anilin oil 1 drachm, is a favorite local anesthetic. In his experience an early and free incision of the drum has proven most effective in checking the acute middle-ear infection and preventing mastoid involvement. In his opinion it must be done early to produce a decisive result, particularly in infants and children. Bulging of the drum membrane is relatively a late symptom of middle-ear suppuration, and one should not wait until it has appeared before deciding to incise the membrane. In all suspicious cases our most effective endeavors at prevention will be attained by a prompt, free, and early incision. It is often necessary to repeat the incision should symptoms of retention appear.

After incision, irrigation with various warm antiseptic solutions (boric acid, saturated solution; normal salt solution; bichloride solution, one to five thousand) are used with the twofold purpose of promoting drainage and destroying the microorganisms. The frequency of the irrigation is governed by the amount of the dis-

charge; every two or three hours is usually sufficient; the amount used should not be less than a pint. Either a rubber bulb or preferably a fountain syringe previously sterilized may be used, a suitable tip for the latter being provided. Only very slight pressure is permitted in conducting the irrigations, to insure which proper precautions are taken both in regulating the height of the douche bag or the pressure upon the bulb. To avoid injuring the drum membrane, irrigating the inflamed tissues, or producing a "dizzy" or "fainting" spell, the solution should be warm and the stream with slight pressure directed along the various walls of the external canal, and not directly inward upon the drum. After each irrigation the external canal, if possible, should be dried to its farthest depth with a cotton-tipped applicator and strip of gauze (boric or plain) inserted, not packed, to the depth of the drum membrane. Under no circumstances should the various combinations of sweet oil, glycerin or powders, etc., be used in the ear at this particular stage. In children, especially, the introduction of laudanum or cocaine "ear drops" is liable to produce toxic symptoms.

Recognizing that a suppurative otitis media, upon which a mastoid involvement usually depends, is consequent upon an extension of infective processes from the nose, throat, or nasopharynx, it is of importance that proper therapeutic measures be directed throughout the treatment to the relief of these contributory conditions. An important consideration also, in his opinion, is the necessity of providing complete physiological rest for the patient during the treatment. As a rule he should, if possible, be sent to a hospital, placed in bed, and the treatments, irrigations, medications, etc., administered by a nurse skilled in such procedures. The practice of permitting such patients to irrigate their own ears and visit offices for observation and treatment is a pernicious one and serves undoubtedly to prolong and accentuate the infective process, as well as exposing the patient to the danger of additional infections.

In the early stages local depletion is advocated enthusiastically by some, while others, notably Dench, consider it worthless. In the adult it is necessary to remove considerable blood, about four ounces. The tip and antrum are the chief sites for the application. Either the natural or the artificial leech may be used. The advocates claim that venous stasis and edema are favorably affected, and hyperemia is produced with an increased leucocytosis, thus raising the tissue resistance and favoring the destruction of pathogenic bacteria.

Bier's hyperemic treatment, seldom used, has not met with general favor, and its therapeutic value in acute mastoiditis is doubtful. The usual method of application is as follows: The patient wears an elastic bandage, 3 cm. wide, around the neck for at least ten and as a rule twenty to twenty-two hours. The pressure produces stasis and increases leucocytosis.

The application of cold may prove serviceable in the early or hyperemic stage. The methods of application are the ice-bag and Leiter coil. The relief from pain it usually produces should not be accepted unconditionally, for this apparent relief may be transitory and only engender a false sense of security. Forty-eight hours is the extreme limit for its continuous application; beyond this period its usefulness is questionable. Politzer states that if the cold eases the pain, the continuation of the inflammation may be assumed; if it proves irritating and unpleasant, the disappearance of the inflammation is probable.

The patient should be put to bed as already stated and calomel in broken doses or a saline administered. The diet should be light, preferably milk. Only exceptionally should morphine and similar remedies be employed, as the relief they produce tends to mask the symptoms.

Counter-irritants, as painting the mastoid with tincture of iodine, applying a blister, application of ointments or mercury and silver, and the Wilde incision, are measures to be condemned. The chief objection to the majority of these is that the consequent soreness they produce adds an additional handicap in estimating the degree and

progress of the local tenderness; while the therapeutic value of the remainder is open to question. Bacon strongly protests against the use of the blister for this reason, and adds that the practice is pernicious and tends to aggravate the disease. The value of the Wilde incision is dismissed by Whiting in the following emphatic language: "Its performance at the present day is a senseless proceeding, for the reason that it is not calculated to reach the sources of the disease." And again, "As a general proposition we may affirm that whenever Wilde's incision is indicated, a mastoid operation is imperative." Some authors claim, however, that subperiosteal abscess, in infants and children, may originate beneath the periosteum of the meatus with no perforation of the cortex, and that, in these types, a Wilde incision is serviceable.

Tivnen has for some time practiced the following routine measures in the management of cases of suspected acute mastoiditis in the early stages consequent upon the middle-ear suppurations: (1) The patient is placed in bed, preferably in a hospital, and absolute quiet insisted upon. (2) Calomel is administered, in quarter-grain doses, followed by a saline or enema. (3) Light diet. (4) If drainage through the external ear is not satisfactory a free incision of the drum is made and a gauze drain inserted. (5) Irrigation with hot normal salt solution, a pint every two hours; each irrigation being followed by deep thorough cleansing of the canal with cotton-tipped applicator and instillation of argyrol. (6) A thin sterile dressing is applied over the external meatus and secured by one turn of a roller bandage; this insures surgical cleanliness, and prevents discharge from contaminating the pillow and patient. Fresh dressing is applied after each irrigation. (7) To prevent a dermatitis, zinc oxide ointment is applied to the external canal and auricle. (8) Ice-bag or Leiter coil to mastoid region continuously for twenty-four to thirty-six hours. (9) Temperature and pulse taken every two hours. (10) Bacteriological examinations of aural discharge and blood examination made at once and repeated as often as indications suggest. (11) Roentgenograms of suspected and healthy mastoid, repeated as often as thought necessary. (12) Attention to nose and throat by spray, gargle, or local applications.

The Effect upon the Blood-pressure of the Injection of Adrenalin in Dementia Præcox.

In the *Boston Medical and Surgical Journal* of August 12, 1920, LOWREY and WRIGHT refer to two papers on this topic, one by Neubürger and one by Walter and Krumbach, which were reviewed in the *Psychiatric Bulletin* for January, 1916. The cases presented showed a considerable variation in reaction to adrenalin, which usually (though apparently not constantly) gives rise to an increase in blood-pressure in normal individuals. Both papers present certain cases regarded as normal in which such rise failed to occur. Schmidt has shown, as he believes, that cases of dementia præcox, especially the hebephrenic and catatonic types, fail to react to such injections.

The observations recorded in the first two papers mentioned reveal much variation in reaction among the precox cases, with failure of reaction in certain manic-depressive cases, so that the value of the test in differential diagnosis was regarded as extremely limited, especially in that very difficult field where an accurate aid is so much desired—*i. e.*, between manic-depressive and dementia præcox.

Other observers have claimed that the instillation of adrenalin into the conjunctival sac is not followed by the characteristic reaction in dementia præcox, but Fuller, working at the Westboro State Hospital, showed that the reaction occurred in otherwise typical precox cases, and failed to occur in cases not precox in type, and so concluded that the reaction was of no value in diagnosis.

Their work was done in the winter of 1918. In all seventy-eight cases were tested. The blood-pressure was first taken;

pressure in the cuff released; a subcutaneous injection of 1 Cc. of 1:1000 P. D. & Co. adrenalin solution given. The blood-pressure was then taken five, ten, fifteen, twenty, and thirty minutes after the injection. In sixty-eight of the seventy-eight cases there was a rise in the blood-pressure, in all but one case the maximum rise occurring in fifteen minutes, and in all but nine cases within ten minutes. The maximum rise varied from 5 to 50 mm. Hg. and no significance can apparently be attached to the height of the rise, as the following table will show:

CASES TESTED AND RESULTS.

Diagnosis.		Blood-pressure. Rise.	Fall.
Dementia Præcox:			
Undiagnosed type	35	30	5
Paranoid	16	15	1
Catatonic	6	6	0
Hebephrenic	3	3	0
Manic depressive	6	5	1
Acute alcoholic hallucinosis	4	3	1
General paresis	5	3	2
Delirium with influenza	2	2	0
Hysteria	1	1	0
	78	68	10

In the unclassified group of dementia præcox, eighteen showed a rise of 10 mm. or less; and only three over 20 mm., one of these reaching 50 mm. Hg. In the paranoid group eight rose to 10 mm. or less, and two over 20 mm. Hg. Four of the six catatonic cases rose from 15 to 20 mm.; all of the hebephrenic under 15. Fourteen of the 54 cases in the dementia præcox group, showing rise, rose 5 mm. or less.

The only significance to be attached to observations in the other groups lies in the fact that some cases show a drop in blood-pressure. The rises are from 5 to 25 mm., most of them under 20.

In one case of hysteria they were dealing with, a man with hysterical paralysis of the right arm, before the injection the blood-pressure in both arms was 110/90. Five minutes afterward it was 135/85 in the left, and 130/85 in the right; but ten minutes after the injection the blood-pressure in the left arm was nearly normal—115/80—while in the right (paralyzed) arm it was 125/80, a striking point meriting further investigation in similar cases.

From an analysis of the blood-pressure reactions to the injections of adrenalin in 78 psychopathic cases, it is clear that it does not have the value in differential diagnosis which has been claimed for it, at least in early cases, since cases of precox show a rise and other cases show a fall. In 54 of 60 cases of dementia præcox there was an increase in blood-pressure, 40 of these showing rise of more than 5 mm. Hg. In 18 cases of other types taken for comparison there was a depressor reaction in four.

The cases were carefully selected so that Lowrey and Wright might be as certain as is clinically possible that they belonged to the groups stated.

Adrenalin and the Bronchioles.

The *British Medical Journal* of August 14, 1920, cites a demonstration which was given by Prof. W. E. Dixon on the action of adrenalin on the bronchioles. The quantity of air entering the middle lobe of the right lung and the blood-pressure were measured in a decerebrated cat. Two injections of adrenalin were given; the effect of each was to increase the volume of air entering the lung as the result of dilatation of the bronchioles and to cause a rise of blood-pressure. The effects were temporary. The third injection was atropine, which produced permanent and maximal bronchodilatation by paralyzing the bronchoconstrictor nerves, and increased cardiac rate, and therefore blood-pressure, by paralyzing the cardiac vagus.

Diagnosis and Treatment of Hyperthyroidism.

FUSSELL, in the *New York Medical Journal* of August 14, 1920, states that the following succinct plan may be followed in treating hyperthyroidism with the minimum of fatality:

First. An early diagnois is imperative by the methods here detailed.

Second. Every patient should be put to rest in order to reduce the metabolism rate. Many patients will be cured by this means.

Third. Patients who cannot give the

time to a thorough trial of rest should be operated upon early, after a partial rest.

Fourth. Patients who are very toxic must always be put at rest and given other appropriate treatment before any form of surgery is attempted.

Fifth. If patients fail to improve under rest, ligation should be done, or the Roentgen ray should be used tentatively to reduce the metabolism rate, until a resection can be done.

Sixth. In very severe cases in which the patients appear to be approaching death, and the *x*-ray cannot be used, a ligation after the method of Wood may be done.

He thoroughly believes that in patients who do not promptly respond to rest, surgery by all odds is the proper procedure.

Indigo-carmine as a Functional Kidney Test.

HARPSTER, in the *Urologic and Cutaneous Review* for August, 1920, states that the great number of tests speaks, at times, for the inaccuracy of all. However, after many years of observation, and the use of a number of the different tests on the same patient, he is convinced, with Thomas and Furness and many other workers in this field of human endeavor, that, all things considered, the indigo-carmine test, with the dye properly prepared and administered intravenously, is the most reliable and simplest of all tests. He realizes that this statement will probably meet with condemnation, and perhaps ridicule, but nevertheless such is his honest opinion.

He still prepares his solutions according to the methods used in the foreign clinics where he was trained.

Five indigo-carmine tablets are dissolved in 100 Cc. of sterile water and concentrated down to 20 Cc. over a water-bath and bottled in sterile glass containers. Twenty Cc. are then injected into the buttocks, or better resterilized and injected into a vein.

The earliest time of the appearance of the dye was eight minutes. The latest time recorded of the appearance of the dye was fifty-eight minutes. In a few cases the dye did not appear at all, or at least while the patient was under his observation, which was probably three hours.

He has come to consider a kidney as normal where the dye appears in from ten to twenty minutes.

Furness has a number of times called his attention to the simplicity of the method and the rapidity with which an accurate functional diagnosis can be made.

His usual procedure is to introduce the cystoscope into the bladder distended with sterile water, locate the ureteral orifices, inject the dye and watch for the time of its appearance. If the dye appears on the right side in twelve minutes, on the left side in twenty minutes, he accepts the findings as a slight impairment of the left kidney. If the dye appears on the right side in ten minutes, and on the left side in thirty minutes or more, he accepts the finding as a serious impairment of the left kidney.

He has repeatedly checked up these cases with phloridzin, phthalein, cryoscopy, and other tests, which have confirmed his original diagnoses. He has repeatedly "gone to bat" on the indigo-carmine findings alone, and not once failed to make a "home run."

It is not necessary to catheterize the ureters, and one hour or less will complete the examination, while by using all the tests often an entire day is consumed in making a functional kidney diagnosis. Thomas says: "There is one feature of the quantitative employment of indigo-carmine which has placed its reliability without a peer, and that is its index of elimination. He believes the index of elimination shows the stability of the kidney function—this is the all-important consideration—more accurately than the mere quantitative output for the first two hours, particularly as the time required for the drug to appear is ignored."

In other words, the time of the appearance of the dye is the vital point, and not the amount of the dye that can be recovered, after two hours' time, from each kidney.

This was the original idea of Richter, Casper, Nitze, and Israel, and has never

been improved upon. Thus, when the elimination for the third hour after the injection of the dye exceeds the elimination for the first hour, the patient is said to be in the negative phase, and operation is contraindicated.

On the other hand, when the amount for the first hour exceeds that for the third hour, the patient is in the positive phase, and should be a good operative risk.

The amount of the dye secreted each hour from each kidney can be easily determined with an indigo-carmine colorimeter or index, and, of course, the ureters in these cases must be catheterized.

No doubt some urologists have never failed to catheterize the ureters (according to their own story), but cases are occasionally found in which the ureteral orifices cannot be found even after one or two hours searching. In these cases the indigo-carmine squirting from the mouth of each ureter is the most valuable aid we have in locating the dye. Harpster spent many months in European clinics under competent instructors in trying to master the use of the cystoscope, and has, under these instructors and in his own practice, catheterized the ureters many hundreds of times, and still has cases in which the ureters cannot be catheterized. What a great aid it is to have a method that can be used where the above conditions are found! In suprapubic prostatectomy often the first stage has been performed; the exact time for the performance of the second stage or removal of the gland can be best determined, and at the earliest moment, by the employment of this test, and the best interests of the patient conserved financially and socially.

Some authors state that indigo-carmine has been displaced by phthalein for a number of reasons, chiefly because it is less accurate, and not more than 25 per cent of the amount injected is eliminated by way of the kidneys.

However, they concede that it is more rapid in appearing than methylene blue. In looking over the different authors he finds that those who condemn its use do not know how to properly use it.

Chetwood in his work on Urology says: "About 2 Cc. of a saturated solution of indigo-carmine are injected into the gluteal region, and the time is taken of its first faint appearance, and again, when the color caused by its elimination is a deep hue. Generally speaking, under normal conditions, the blue color is visible in from ten to twelve minutes after injection. In twenty-four hours about 25 per cent is eliminated."

Harpster insists that he has stated above the only proper method of preparation and administration.

By concentrating down from 100 Cc. to 20 Cc., we have a supersaturated solution, and at least 20 Cc. must be injected intravenously to secure the best and most accurate results.

The time of the appearance is the crucial or vital point.

If a quantitative elimination test is desired, the phthalein test is the best, and the checking up with the colorimeter fairly accurate. The longer the delay in discoloration, the greater the disturbance of function of the kidney, and the same is true of the intensity of the discoloration.

The total nitrogen and urea estimation is complicated by the difficulty of the test, the diet must be exact, and a 24-hour specimen of urine is required. This is impracticable and inadvisable in collecting urine from the ureteral catheters.

Normally, ureteral ejaculations begin by the meatus raising itself with an effort, as if under the influence of a wave, animated by the contraction of the muscular fiber of the ureter. Next, the orifice opens slightly, giving passage to a jet of clear liquid. It remains open an instant and then contracts. It looks like glycerin mixing with water. The emission is ordinarily repeated every twenty or thirty seconds, or longer.

Normally, after the injection of indigo-carmine, when the kidney is not impaired, the blue can be seen readily after some minutes.

Ureteral emissions containing blood may establish the diagnosis of renal hematuria, but a definite cause for the bleeding must,

if possible, be determined. Burroughs, Wellcome & Co.'s technique is to dissolve one of their tablets of indigo-carmine in 10 Cc. of distilled water, and a portion of this solution is injected in the buttocks or a vein. It may appear in the urine in ten or twelve minutes.

Kapsammer believes that the length of the interval between the injection of the indigo-carmine and the appearance of the blue color in the urine is of the greatest importance; and also the degree of the intensity of the color must be taken into consideration.

Ninety-six men, applicants for employment, where a rigid physical examination was made, including a thorough urinalysis, blood examination, etc., etc., were tested with indigo-carmine by one of Harpster's assistants. Their ages ranged from twenty-one to fifty-six years, and all were passed as physically qualified. The tests made on these apparently normal men showed the findings as unusually accurate and very satisfactory and establish the reliability of the test.

Thompson-Walker uses 20 Cc. of a 0.4-per-cent solution. He says urine becomes tinged in five minutes (he rarely finds it in less than ten or twelve minutes), reaches its highest color in thirty to forty-five minutes, and remains colored for about twelve hours. Delay in secretion and diminution of the quantity of the dye are indications of a reduced renal function.

He says the amount injected (20 Cc.) is its greatest drawback. Harpster has in only rare instances found trouble from the amount used, and never when injected into a vein.

Blood Regeneration Following Simple Anemia.

Hooper, Robscheit and Whipple, in the *American Journal of Physiology* for September, 1920, state that Blaud's pills are inert when added to various diets which do or do not favor rapid blood regeneration. We may not assume without positive proof that inorganic iron is of value in the treatment of secondary anemia.

Splenectomy may or may not modify this blood regeneration reaction. Limited diets following anemia periods associated with splenectomy may be the cause of fluctuations in the normal expected curve of blood regeneration.

Hemoglobin (by mouth, intravenously, or intraperitoneally) exerts a distinctly favorable influence upon subsequent blood regeneration.

Treatment of Gonorrhea in Women.

In the *British Medical Journal* of August 21, 1920, Browdy says that to prescribe a douche or order a tampon is useless.

He would divide the disease in women into two classes: the acute or the subacute and chronic. The latter, in his opinion, are due to an undiagnosed source of infection, whether it be disease of Bartholin's glands, Skene's tubules, warts, etc., or to a true reinfection. Repeated reinfections are naturally incurable. If no focus of disease is found the discharge is probably kept up by douching, and if microscopically a diplococcus is found it will most likely be inert.

Acute gonorrhea in women is readily curable if the medical attendant has the full control and coöperation of the patient. He has obtained good results from the use of acriflavine; the drug is as efficacious as in the male.

His routine is to order the patient to sit in a hot bath containing lysol for twenty minutes daily; then after placing her in the lithotomy position he swabs the external genitalia with a solution of acriflavine (1 in 1000). If the urethra is involved, it is also swabbed by means of a little cotton-wool on the end of a probe dipped in that solution. A Sims speculum is next inserted into the vagina and the cavity similarly treated. Diseased foci are searched for, and if present destroyed. The vagina is then lightly packed with gauze soaked in acriflavine, which is left in for twelve hours. The packing aids draining, separates the surfaces, and permits of a continued action of the antiseptic; it further prevents the formation of condylomata by

absorbing discharges. This treatment is carried out twice daily. Within ten to twelve days all discharge usually ceases. Pessaries are then prescribed, one to be inserted night and morning, these being composed of lactic acid bacilli, which act as a fair substitute for the normal vaginal Döderlein bacillus.

The Schick Test, Its Control, and Active Immunization Against Diphtheria.

BLAU, in the *New York Medical Journal* of August 28, 1920, states that the method of injection is the same in all tests—in the capillary Schick test, in the capillary control test, and in the stock solution Schick test. The procedure should be uniform in all tests, and conducted as follows: Sterilize the skin with cotton soaked with alcohol and then insert the needle into the skin.

An efficient guide for the introduction of the needle into the proper layer of the skin is to be able to see the oval opening of the needle through the superficial layers of skin cells.

A definite, blanched, circumscribed, wheal-like elevation, the size of a dime, with the markings of the openings of the hair follicles distinct, shows that the injection is properly made. An ordinary one-Cc. hypodermic syringe, with a fine half-inch steel needle, can be used for the injections. The site of the injection need not be covered.

The reactions should be observed at the end of twenty-four and forty-eight hours, basing the final judgment on the last reading. In case of doubt, a reading should also be made at the end of four days.

1. The positive (+) reaction becomes apparent at the end of from one to four days, generally at the end of two days, at a time when the pseudo element of the reaction has disappeared. It consists of a definitely circumscribed area of redness, from 1 to 2½ cm. in diameter, with a superficial scaling and a beginning brownish pigmentation. A strongly positive reaction will occasionally show vesiculation of the surface layers of the epithelium. The reaction gradually disappears in from one to four weeks, going through various stages of scaling and pigmentation. After about two weeks a distinct brownish area is seen at the site of the injection.

2. The negative (—) reaction. In most cases nothing is seen at the site of the injection. In a small proportion of cases a pseudoreaction is manifest.

3. The pseudoreaction shows an indefinite area of redness of varying size, surrounded by a secondary areola, which shades into the surrounding skin. The pseudoreaction appears earlier than the positive reaction, in from six to eighteen hours, reaches its height in from twenty-four to thirty-six hours, and has disappeared by the end of from two to four days, at a time when the positive reaction becomes apparent, and may leave a poorly defined area of pigmentation, but generally no scaling.

4. The combined reaction is a reaction showing a positive and a pseudoreaction in one. The positive element of the reaction becomes apparent at the end of from two to four days, at a time when the pseudo element of the reaction has disappeared. The appearance of the positive element of the reaction is that described under 1. The appearance of the pseudo element of the reaction is that described under 3, and resembles the reaction at the site of the control test, if there is a reaction at the control, with which it should be compared.

5. The doubtful (+ —) reaction. At times doubt arises as to what the reaction really is. The reaction may not be typically positive, or typically negative, or typically a pseudoreaction. In such cases the leaning should be toward a positive reading.

6. In the control reaction, as a rule, nothing is manifest at the site of the control test. Occasionally the control test shows a pseudoreaction.

(1) A positive reaction. If the person tested is not immune to diphtheria, the toxin in the Schick test will exert its irritant action, and the reaction is positive. A positive reaction shows that the individual has no antitoxin in his blood, showing that

he is not immune to diphtheria, and that he needs active immunization against diphtheria to render him immune against the disease.

(2) A negative reaction shows that the individual is immune against diphtheria, and therefore needs no active immunization. It also indicates, in children over eighteen months of age, the development of a natural immunity against diphtheria, which apparently is permanent.

(3) A pseudoreaction has the same significance as a negative reaction.

(4) A combined reaction has the same significance as a positive reaction.

(5) A doubtful reaction should be considered as a positive reaction, and therefore requires immunization.

The Schick test is positive between the ages of one and four years in about thirty-two per cent of normal children. It is positive in a slightly larger proportion of measles cases, in twice as many cases of scarlet fever, and in nearly three times as many cases of poliomyelitis. Susceptibility to one of the less contagious diseases, like poliomyelitis, indicates that the child is more likely to be susceptible to other contagious diseases. After the sixth year the proportion of positive reactions rapidly decreases, being positive in from four to ten per cent only. In adults eighty-five to ninety-five per cent of the tests are negative.

Sexual Psychoneuroses.

BEARDSLEY, in the *Pennsylvania Medical Journal* for August, 1920, reaches these conclusions:

1. Functional nervous conditions deserve as careful investigation and treatment as do organic illnesses and are far more easily cured.

2. The most common etiological factors in the functional nervous conditions encountered in youths and adolescents have a sexual basis.

3. Masturbation (in the wide interpretation of the term) is practically universally indulged in at certain stages of development by boys and youths, and is a frequent habit among adolescents of both sexes.

4. The psychic effect of masturbation is to increase the liability of anxiety states, and in practical medicine the knowledge of the cause of the anxiety can be used to bring about a cure.

5. Proper explanation of the truths of sexual hygiene by the parents of children or by the family physician would accomplish much in preventing anxiety states, and all intelligent and sound advice from official sources, such as physical instructors, teachers, etc., should be encouraged.

6. The diagnosis of sexual anxiety states depends upon the elimination of organic disease by careful physical and laboratory examinations. The knowledge that practically every male youth and many females have been at some time masturbators should cause careful inquiry into the sex life and thoughts of our functional nervous patients during the adolescent period.

7. The recognition of the true cause of the symptoms renders the cure of the condition sure in an average patient.

Salvarsan by Rectum in the Form of Enteroclysis.

In the *New York Medical Journal* of August 28, 1920, WRIGHT reports that following the basic principles that the patient should be empty, thirsty, and hungry, his patients were made empty and hungry by starvation and purgation and thirsty by withholding liquids and giving a few doses of atropine. In a series of fifty cases the following routine was followed:

If the administration was to take place at 1.30 P.M. the patient was given a very light supper, one fluidounce of a saturated solution of magnesium sulphate and one or two compound cathartic pills at 5 or 6 P.M. of the preceding day. The next morning they were denied the regular breakfast but were given two cups of black coffee and one piece of soft toast. At 7 A.M. they received 1/150 grain of atropine, at 10 A.M. another, and went to bed, where they remained until that evening or next morning.

At 1 P.M. they were given one-quarter of a grain of morphine and 1/150 grain atropine hypodermically. During the entire day they were denied liquids, except in some instances a half-glass of milk at noon. At 1 P.M. an enema was given, consisting of magnesium sulphate one ounce, glycerin two ounces, and hot water. By this time the condition of the patient was such that the absorption of the enteroclysis by a dried-up bowel was an easy matter—this is what he wished to accomplish. At 1.30 P.M. the enteroclysis was given and continued at a rate of forty-five to fifty-five drops a minute.

The solutions used varied according to whether salvarsan or arsenobenzol, neosalvarsan or neoarsenobenzol was given. If arsenobenzol was used it was prepared as usual and diluted with hot normal saline to 260-320 Cc. and the enteroclysis bag kept hot by hot-water bags or electrical appliances. The neoarsenobenzol was dissolved in 60 Cc. of water at room temperature and diluted to 200-260 Cc. with normal saline and required no heat. The rate of flow ran from forty-five to fifty-five drops a minute and generally required one and a half to two hours for the injection. At first

Dilution used. Rate of flow.	200 Cc. Time. hrs.	min.	230 Cc. Time. hrs.	min.	260 Cc. Time. hrs.	min.
40 gtt. per min.	1	15	1	27	1	38
42 " " "	1	11	1	22	1	33
45 " " "	1	7	1	17	1	27
47 " " "	1	4	1	14	1	23
50 " " "	1	0	1	9	1	18
52 " " "	0	58	1	7	1	15
55 " " "	0	55	1	3	1	10

the patients were not allowed to eat any supper that night, but later it was found that some could eat a light lunch and experience no after-effects; those who could not went without food. That night they were allowed a few liquids, and the following morning they resumed ordinary conditions and diet.

The untoward effects have been neglible and only once has anything unusual occurred, except now and then slight headache. If the patient cheats on the fasting she is likely to have nausea, perhaps vomiting and headache. One patient was given the enteroclysis with only a preliminary enema and morphine and atropine. That night she experienced pain across the abdomen, diarrhea, painful defecation, and nausea. Bismuth, opium, plenty of water, rest in bed and liquid diet with several enemata benefited the patient. There were no later manifestations. Another patient complained of dizziness and a silly feeling, which were traced out as an idiosyncrasy to atropine and morphine.

The dose varies between 0.6 and 0.9 gramme. Nearly all were started with 0.6 gramme of arsenobenzol for the first one, two, or three doses, which was increased to 0.9 gramme as the treatment progressed. With neoarsenobenzol 0.9 gramme was given for four or five doses and then 1.0 gramme. Of course it is not presumed that salvarsan by this method is any more beneficial than when administered in other ways, and mercury and iodides are to be used in exactly the same way as in treating syphilis by the intravenous injections of salvarsan.

The indications for rectal administration are as follows:

1. Fat patients with small or no visible superficial veins.
2. Scrawny patients with poor veins.
3. Children.
4. Women for whom needlemarks in the arm would prove inconvenient in evening dress.
5. Patients with knotted veins from previous intravenous injections.
6. Hysterical and highly nervous types of patients.

Wright further remarks:

1. It is thought that by this method the solution is picked up by the blood-vessels and lymphatics of the rectum and sigmoid and the greater proportion of the solution conveyed directly to the liver whence it is meted out, and that much more salvarsan enters the liver and is stored there by this method than by the intravenous method.

2. It has been questioned whether atropine should be used. The method, however, has proved successful in the presence of atropine, the drug which the researches of Novi have proved to be of greatest avail in the prophylaxis of nitritoid shock.

3. Morphine tends to quiet the patient

and put him in a mental and physical state of acquiescence. This is especially helpful in the case of excitable and hysterical women, in whom an extra injection of morphine is frequently indicated.

4. The saturated solution of magnesium sulphate given by mouth has a hydragogue action, and desiccates the patient as well as cleansing out the gastrointestinal tract.

5. Any preparation of arsphenamine or neoarsphenamine lends itself readily to this method of administration. In his hands, however, the neoarsphenamine has given the best results. It is less toxic and far less troublesome to prepare and administer.

6. More concentrated solutions might be used, but the above dilution has proved entirely satisfactory.

7. Critics prejudiced in favor of the intravenous administration of these drugs have raised the objection that much of the dose might be ejected by defecation. They fail to take into consideration the fact that owing to the large doses of atropine and morphine given, with the resulting bowel atony and inhibition of peristalsis, there will be no bowel movement for many hours. During this interval ample time is afforded for the slow and complete absorption of all the drug administered. On the other hand, it is well known that a fair proportion of the dose of these drugs administered intravenously is excreted during the first few hours by the kidneys. As yet there has been no time for the laboratory study of the excretions after the administration of salvarsan by rectum. But it would seem that by this method the kidney waste should be reduced; for when a given dose of arsenobenzol is injected directly into the blood stream the concentration in the blood rises immediately to above its kidney threshold value, and is only reduced to below this value after the liver has had time to effect a balance between storage and circulation. Meanwhile much of the drug has been lost by the kidney excretion. In injections by rectum absorption is slow, and the absorbed product passes directly to the liver, so that the latter is probably able to effect the balance between the storage and circulation before the concentration of the drug in the blood ever reaches the kidney threshold. For this reason the kidney threshold is probably never exceeded in the blood and none of the drug is lost in the urine.

Inasmuch as Wright has been able to clear up or modify the secondary stages of syphilis and the reaction of the patient's blood to the Wassermann test by the rectal administration of salvarsan in the form of enteroclysis, without the use of mercury or iodides, he believes this to be a satisfactory method for its administration to those who are in need of it and who cannot receive it intravenously.

Relative Efficiency of the Different Mercurial Preparations.

RAMSEY and GROEBNER, in the *American Journal of Diseases of Children* for September, 1920, state that the practical deductions which may be drawn from their series of experiments are as follows:

1. Mercurial ointment, 50 per cent, is to be preferred to the less concentrated forms and need not be repeated more often than twice weekly instead of daily. The quantity of mercury absorbed is much increased by friction.

2. Calomel ointment is absorbed, but less rapidly and to a less extent than the mercurial ointment, and should therefore be given in greater concentration.

3. The salicylate of mercury in oil should be given hypodermically twice weekly instead of once.

4. The mercuric chloride, by hypodermic injections, although the dose is very small, continues to be eliminated for six or seven days. The fact, however, that its use frequently is followed by the appearance of protein in the urine should exclude it from the treatment of syphilis in children.

5. Calomel by the mouth is absorbed in small amounts, and continues to be eliminated for a considerable time, so that it is probable that it would be sufficient to give it at intervals of several days, thus avoiding diarrhea.

6. Gray powder is absorbed to a small

degree and eliminated rather rapidly, so that large doses repeated daily would probably be necessary to maintain mercury in the circulation.

They intend to continue their experiments and determine, if possible, whether the clinical results will bear out the observations made in these experiments. In one case of congenital syphilis, with marked keratitis, treated by inunctions of 50-percent mercurial ointment, once weekly, the clinical progress was apparently quite as satisfactory as in cases in which daily inunctions were given.

Adjustment of Blood Volume After Injection of Isotonic Solutions of Varied Composition.

SMITH and MENDEL, in the *American Journal of Physiology* for September, 1920, state that when isotonic solutions of the acetate, nitrate, sulphocyanate, bromide, chloride, tartrate, sulphate or citrate of sodium are injected intravenously at such a rate that a volume equal to the estimated blood volume is introduced in two minutes, the rate at which the added fluid escapes from the circulation, as measured by the relative blood volume at successive subsequent intervals, is decreased to a slight extent by the sulphate, tartrate, and citrate.

When calcium chloride, hydrochloric acid or colloidal silver was dissolved in sodium chloride solution and was injected intravenously there was no alteration of the rate of return to normal blood volume.

When acacia-sodium-chloride solution was used there was a marked and long-sustained increase in the relative blood volume.

Sucrose in isotonic solution did not delay the passage of fluid from the blood-vessels.

The fluid which leaves the circulation in the restoration of blood volume after the injection could not be accounted for by the passage into the muscles or by edema fluid. The volume of urine exudate into the serous cavities and the excretion into the intestine and stomach probably are concerned in the disposal of the fluid leaving the circulation.

A Therapy for Accelerating the Elimination of Carbon Monoxide from the Blood.

HENDERSON and HAGGARD, in the *Journal of Pharmacology and Experimental Therapeutics* for August, 1920, conclude that during the development of carbon monoxide asphyxia there is vigorous hyperpnea, and thereafter, probably owing to deficient oxygenation and other causes, there is a diminished production of CO_2. As a result of deficiency of CO_2 in the blood, asphyxiated animals when restored to pure air exhibit for half an hour or more a very marked depression of breathing. The rate of elimination of carbon monoxide is correspondingly slow. The condition of tissue asphyxia is thus continued, although the body is surrounded by fresh air.

It is suggested that this post-gassing period of continued asphyxia may be of critical importance in inducing subsequent structural degenerations and functional impairments. Its abbreviation is therefore an important object both for therapy and prophylaxis.

Oxygen inhalation during this period has only a slight effect; it is not adequately inspired.

Inhalation of CO_2 diluted with air has an immediate effect. It augments breathing and thus hastens the elimination of carbon monoxide.

Inhalation of oxygen plus CO_2 is far more effective than either gas alone; for the augmented breathing allows the oxygen to effect a rapid displacement of carbon monoxide from the blood. Functional restoration is correspondingly accelerated.

Some Salient Facts Regarding the Toxicity of Arsphenamine and Neoarsphenamine.

ROTH, in the *Archives of Dermatology and Syphilology* for September, 1920, states that the results of his experiments warrant the following conclusions:

1. Neoarsphenamine behaves differently in the animal organism from arsphenamine and should not be regarded simply as

arsphenamine in a convenient form of administration.

2. When administered intravenously and at a constant rate, acid solutions of arsphenamine are much more toxic than the corresponding alkaline solutions, the toxicity of the acid solutions increasing with the concentration.

3. A properly alkalinized 2-per-cent arsphenamine solution when administered intravenously and in high dosage is slightly more toxic than a 0.5-per-cent solution.

4. The toxicity of properly alkalinized arsphenamine increases greatly as the rate of its intravenous administration is increased. The rate of administration is, therefore, an important factor in determining toxicity.

5. When neoarsphenamine is found to dissolve with comparative difficulty, it is generally highly toxic and should be discarded.

6. Shaking aqueous solutions of neoarsphenamine or alkalinized arsphenamine in the presence of air increases their toxicity markedly. When a 4-per-cent solution of neoarsphenamine is shaken vigorously for ten minutes its toxicity is more than quadrupled.

7. Arsphenamine preparations made in the United States are generally less toxic than those of foreign manufacture.

8. Neoarsphenamine preparations made in the United States compare favorably with, and in certain instances are decidedly less toxic than, most of the foreign products.

Provocative Procedures in the Diagnosis of Syphilis.

O'LEARY, in the *Archives of Dermatology and Syphilology* for September, 1920, in summarizing his article on this subject states:

1. The provocative procedure employed by the Section of Dermatology and Syphilology of the Mayo Clinic consists of a single intravenous injection of 3 decigrammes of arsphenamine, with a series of seven Wassermann tests made at twenty-four-hour intervals, the first blood being drawn just before the arsphenamine injection, and, if indicated, daily observation of the patient.

2. Four factors contribute to the diagnostic worth of the procedure: (*a*) A true provocative effect on the Wassermann reaction. (*b*) The advantage of a series of Wassermann tests which strikes the average and assists in the interpretation of the spontaneous or technical variations of the ordinary Wassermann test. (*c*) An opportunity to observe a focal flare-up in a visible lesion, the "Jarisch-Herxheimer reaction." (*d*) The beginning of the therapeutic test. About one-fourth of the value of the procedure is ascribed to the provocative effect, one-half to the Wassermann series, and the remaining fourth is divided between the Herxheimer reaction and the therapeutic response elicited. The provocative procedure, including the Wassermann series, Herxheimer reaction, and early therapeutic effect, adds about 16 per cent to the sensitiveness of a conservative Wassermann test in the diagnosis of syphilis.

3. Although O'Leary believes that gradations in the strength of the true provocative effect are not essential to a positive result, and although a single positive reaction among a number of negative reactions is usually significant, it must be remembered that the provocative procedure here described is subject to the same margin of error and calls for the same interpretation of serologic methods as the Wassermann reaction itself. False positive tests and persistent negative results in the presence of syphilis may occur as in all Wassermann test techniques.

4. The use of hypersensitive antigens in a provocative procedure is to be deprecated, since they increase the risk of false positive results beyond the point justified by the general value of the procedure in diagnosis.

5. A negative provocative test does not establish the fact of cure, but a positive provocative result is of assistance in recognizing an infection which might otherwise have remained concealed.

6. The provocative procedure described is of no value alone, and should be regarded merely as a part of a general syphilologic examination. The procedure, for example, may yield negative results in the presence of positive spinal fluid findings.

7. The provocative procedure is not a substitute for clinical judgment, and should be regarded in doubtful cases merely as the beginning of a therapeutic test.

Intestinal Extraction of Adsorbed Alkaloids.

CLOWES and WALTERS, in the *Journal of the American Medical Association* of September 4, 1920, state that it has been demonstrated that alkaloids, adsorbed by fullers' earth in such a manner that they cannot be extracted by water or an aqueous solution of sodium bicarbonate having the alkalinity of intestinal contents, are released in the intestinal tract when administered orally, and that this release is not dependent on intestinal alkalinity.

The proofs of this are:

Adsorbed atropine administered to cats by mouth produced prolonged dilatation of the pupil of the eye.

Adsorbed strychnine administered by mouth caused convulsions and death in rabbits and rats.

Adsorbed emetine administered orally in large doses caused the death of cats; introduced into the peritoneal cavity it caused the death of rats. Emetine was excreted in the urine when the adsorbed alkaloid was administered orally or introduced into the peritoneal cavity. Adsorbed emetine administered orally caused diarrhea in men and animals.

Quinine was recovered in considerable amount in the urine after oral administration of the adsorbed alkaloid.

In all of the foregoing cases the dose of a given adsorbed alkaloid required to produce a specific effect was found to be larger than that of the free alkaloid, and it was demonstrated that the rate of absorption was retarded and the action of the alkaloid prolonged, thus avoiding a peak concentration.

While the alkaloids were not extracted from their adsorption compounds by water or a one-per-cent aqueous sodium bicarbonate solution, they were extracted with considerable facility by slightly alkaline and neutral soaps.

The alkaloids were extracted to a certain extent by egg-yolk, blood corpuscles, plasma, intestinal contents, and macerated intestinal mucosa.

The foregoing data agree with Sollmann's findings that the ipecac alkaloids are not released from "Alcresta ipecac" by extraction with a one-per-cent aqueous sodium bicarbonate solution *in vitro*, but they do refute the inference drawn by Sollmann that the ipecac alkaloids are not liberated in the intestine when administered orally in the form of this adsorption compound.

The War and the Heart.

In *Northwest Medicine* for September, 1920, WINSLOW states that from personal experience in the army with the unreliable diagnoses in heart cases by the general practitioner, and the almost equally unreliable opinion of the too technically trained and insufficiently experienced cardiologist, he doubts the findings of both.

It is hard to say whether the lack of ordinary substantiated knowledge about the heart is any worse than the results of a special training with all the modern physical instruments of precision, minus a long and broad clinical experience in general diseases. One may only know hearts by following them for years, and how often doctors fall down lamentably in the prognosis of heart troubles and become forever after the subjects of the patient's pet reminiscences.

The narrow perspective of the too pure cardiologist reminds one of Lincoln's story of the man with a gun who mistook a flea on his eyelash for a squirrel on a tree. If the ink polygraph (or electrocardiograph) is the only gun in the hands of the cardiologist he will not bag much game.

The cases that may be elucidated by the

electrocardiograph include chiefly the arrhythmias, and brady- and tachycardias, and these may, in ninety cases out of a hundred, be determined satisfactorily by clinical signs and symptoms, as noted above.

While the newer instruments of precision are of great value in heart work, they are only side aids in diagnosis and cannot take the place of long and wide experience in diseases of the heart. No instrument "can replace the watchful eye, the alert ear, the tactful finger, and the logical mind which correlates the information and so reaches an exact diagnosis." And an essential addition to this is a long experience in trained observation to enable one to utilize intelligently the history, symptoms, and physical findings.

Intestinal Stasis.

LOCKWOOD, in the *Journal of the Michigan State Medical Society* for September, 1920, claims that from an etiologic standpoint patients with chronic disordered action of the bowel may be divided into five big groups:

First, dietetic and cathartic. The contents of the canal are forced along by the pertistaltic waves, and these contents furnish the stimulus to peristaltic action. The food of to-day furnishes the stool for the third or fourth day. On a small residue diet this may be five days, while on a large residue diet it may be shortened to two days. Stools may be easily marked off by administering a dose of charcoal or carmine.

Civilization has changed our habits of eating since our alimentary tract was formed. We eat a white bread from which the normal cellulose has been carefully removed. We live in cities where fresh vegetables are scarce and costly. We eat hurriedly of non-residue-containing food, because it is easier and quicker to get and eat.

In spite of this the average person feels that he should have a good bowel movement every day. He doesn't, so he takes a cathartic, the advertisement of which he has probably seen in the paper or on a billboard. The result is a good watery movement and he feels better. The next day he has no stool because the colon has not yet had time to fill, so on the second or third day he takes another cathartic, and so on until the cathartic habit is established.

Most cathartics are irritating and produce a watering of the membrane of the bowel, just as they would produce a watering of the eye were they applied to that mucous membrane. Continuous application of these irritants produces a catarrhal condition of the bowel with mucus, accompanied by a disordered action, manifested by spasm or reversed peristalsis to protect itself from the oncoming irritant.

The second most common group of constipated people are the neurotics; here the whipple-tree action of the vagus and sympathetic is upset and we get various manifestations of intestinal disorder. To treat these people without making an attempt to uncover their apprehension and straighten out their conflicts in life is a mistake. The effects of emotions, anger, fear, disgust, etc., upon the motor functions of the gastrointestinal tract have been amply demonstrated both clinically and in the laboratory.

The third group includes those bowel disorders arising reflexly from disease in other portions of the body, such as pelvic inflammatory disease, chronic appendicitis, disease of the gall-bladder, gastric ulcer, etc.

The fourth group is rather common and includes the general asthenia group (asthenia universalis) manifested by ptotic abdominal organs, dropped heart, long thorax, lax abdomen, floating tenth rib, etc., together with autonomic nervous system disturbance. Here also come the congenital malformations of an extra long and redundant colon, and the acquired ptoses from a stretched-out sagging abdomen following repeated pregnancies. These people have more or less gastric disturbances and soon fall into the dietetic cathartic group.

It might be argued that many of these people have an actual partial bowel obstruction, and need short-circuiting operations,

their kinks straightened out, and bands, etc., removed, but this is not borne out clinically as they generally respond to accurate bowel management. It is true that many have more difficulty in getting their intestinal contents along toward the rectum. They have a weak spot in their anatomy which may have to be favored for years, or all their life, just as a broken leg may partially incapacitate that member for a long time. However, the longer their bowel is working right, the nearer they are to recover and the more liberties may be taken in their diet.

The fifth group is more rare and includes cases of actual organic obstruction such as tumor masses either in the bowel or pressing on it from without. Here also one would include rectocele and hernia where the bowel pushes out through the abdominal wall or vagina and produces a blind pouch, against which the normal movements cannot act. Hypertrophy of the rectal valves may also cause actual partial obstruction.

It must not be assumed that this grouping is always distinct, as most cases come under more than one group, and practically every case ends with a cathartic habit. It is rarely that patients consult us while cathartics are still efficient, or before they have bowel pain or distress.

Syphilis of the Central Nervous System.

In the *Ohio State Medical Journal* for September, 1920, CUMMER says that once the diagnosis has been made the question of treatment arises. As great as have been the advances in antisyphilitic therapy in recent years the problem of treatment of cerebrospinal manifestations is not yet satisfactorily solved. To be sure we are able to arrest the degenerative process in many more cases than we were formerly; we are able to afford symptomatic relief in many others; but our present methods still fall short of the desired optimum implied in the word cure. Even our most favorable results would be better described as arrested cases. Indeed, it is doubtful if this ideal of absolute cure can be attained. The inaccessibility of the inflammatory areas in many portions of the brain and cord to drugs borne by the circulation, and the irreparable degeneration of nerve tracts after inflammatory processes of any extent and duration, are two important factors which add to the difficulty. We are brought face to face with the proposition we have stated before: proper treatment of cerebrospinal lues consists in its prevention. The earliest treatment of a case in the early secondary stage should be as intensive as it would be were signs of neurological syphilis present. When this ideal has not been realized the next line of defense is to recognize the invasion of the central nervous system at the first possible moment. The prompt recognition of cerebrospinal syphilis, therefore, is not something of mere academic interest; it is something of the utmost practical importance to the patient, because when the diagnosis is made early enough and efficient treatment is instituted immediately, much damage can be prevented and there is often an excellent opportunity of arresting the process. On the other hand, a delay of a few months in cases of active meningoendarteritis may permit permanent damage.

The following methods of treatment are at our disposal: mercury aided by potassium iodide; intensive intravenous use of arsphenamine; and the intraspinous use of arsphenaminized serum. Mercury is useful, but it has definite limitations. It should always be given a trial, and while the results may be excellent, they are often inadequate and disappointing. Complete reliance should not be placed upon it, since the process may advance steadily even under its vigorous use. In many instances the maximum amount of improvement is seen with the intensive intravenous use of arsphenamine. By intensive use we mean six or eight injections given at intervals of seven to ten days, alternating these, when possible, with potassium iodide and mercury inunctions or injections. Many patients obtain complete relief of the lightning pains, great improvement in general health, and

general arrest of the inflammatory process as indicated by the improvement in the laboratory findings.

A regimen composed of courses of arsphenamine alternating with courses of mercury and potassium iodide may represent all that is required in the way of active treatment. For a certain residuum of cases, however, this method of attack is far from sufficient. Many individuals are unable to tolerate it. With others who are able, excruciating pains are still experienced in spite of most intensive application; general health is greatly impaired; indeed, all the symptoms progress rapidly, while the sufferers regress from partial incapacity to complete invalidism. In these cases the patients should be given the benefit of intraspinous therapy. The chief disadvantage of intraspinous treatment is that it requires a certain amount of technical skill. The author's experience shows that it is not accompanied or followed by unfavorable results when arsphenaminized serum is given and the proper technique is employed. The efficacy of the method has aroused a considerable amount of discussion; a review of the literature shows that it is still a moot question. He has, however, followed cases for about seven years, and has reported the results from time to time. As judged by clinical observation and by repeated laboratory examinations, he feels that for many patients intraspinous therapy offers distinct hope. Whatever treatment be employed, the same rule should hold; dogged persistence in treatment on the part of both the sufferer and the physician are absolutely vital to success.

The Applications and Limitations of the Arsphenamines in Therapeutics.

In the *Archives of Dermatology and Syphilology* for September, 1920, STOKES says that the last word in any discussion of the arsphenamines in therapeutics should be an appeal for conservative interpretations. Particularly should such conservatism reign in the field of syphilis. Too short a time has elapsed since the discovery of these drugs, and too little is as yet known about the ultimate problems of the pathology, immunology, and parasitology of syphilis to justify the announcing of new infallibilities. The necropsy pathologist of the next fifty years may well, like Warthin, upset our most plausible generalizations of to-day. Seasoned tradition and conservatism are still the wisest guides in our interpretation of clinical cure. Arsphenamine has made it apparently possible and even probable, but only to the inexperienced has cure been made absolute and inevitable. He questions, too, whether arsphenamine will prove to be the standardizer of the syphilotherapeutic field. We may prescribe minimum requirements for early cases, and if we do let us place them, if anything, far within the limits of conservatism. As for maximums, and for the adequate employment of arsphenamine in difficult cases, it will be a long day before a text-book guide and rule of thumb can pilot the inexperienced through a standardized routine to a guaranteed successful result. Stokes feels strongly that it is a major duty of all to whom circumstances have assigned the material and the facilities for such work, to provide in time, by closer observation, by follow-up, and by adequate record, the exact data on which alone can be based a final evaluation of the arsphenamines in therapeutics.

Bronchial Asthma in Childhood.

Writing in the *New York Medical Journal* of September 18, 1920, MASON states that as it takes considerable time to determine the provocative agent, it is necessary to do something in the interim to relieve the discomfort of the patient. The following are some of the drugs which may be used to give relief:

Adrenalin.—This, as a rule, clears up a case, or at least gives marked relief, within a few minutes, but, because of its potentiality and the fact that it loses its effect if repeated often, it should be given only during severe attacks or in cases in which there is only an occasional attack, say once a year.

Adrenalin can be given in doses from three to ten minims, of the one to a thousand solution, by hypodermic injection.

Benzyl Benzoate. — This is a harmless antispasmodic and in many cases gives very satisfactory results. Unfortunately, it does not relieve in all cases and has the disadvantage of having an unpleasant and lasting taste. In children who are old enough Mason gives the drug in capsules containing two minims each, four times a day. In the ten-per-cent solution the dose is half a teaspoonful four times a day for a child six years old. Increased doses do not appear to be more effective, although he knows of one case in which benzyl benzoate afforded absolutely no relief when given in one-half teaspoonful doses, but which responded to one teaspoonful doses, when, two weeks later, the patient had his next attack. Benzyl benzoate is best given continuously to patients having frequent attacks, but this is not necessary in those having only occasional asthmatic attacks.

Atropine.—When given up to the physiological limit it will sometimes be of benefit, but Mason has never found it quite satisfactory.

Iodides.—These drugs may sometimes improve the patient's condition, and can be given in the form of syrup of iodide of iron as a general tonic in all cases.

Drugs such as aspirin and the bromides are of doubtful value; nitrite of amyl or nitrite fumes are beneficial in relieving spasmodic breathing during the paroxysm.

Varicose Veins.

The *Lancet* of September 18, 1920, writing editorially on this subject, states that the September number of *Medical Science* contains an interesting review of the various methods of treating varicose veins of the lower limbs. The subject has not recently received much attention in England, and it is noteworthy that nearly all the authors and papers quoted are of continental origin. This is not owing to lack of material, for the condition is as common in this country as in any other. Probably it is due rather to the fact that hospital accommodation is insufficient to admit of the treatment on a large scale of an ailment which is usually regarded as of minor importance. Yet the total amount of disability and suffering due to varicose veins must be enormous. Patients with this condition can be divided into two main classes: (1) Younger people with bunches of varicosities on the thigh or calf, usually along the course of the internal saphenous vein; (2) elderly people with edematous legs and one or more intractable varicose ulcers. Patients of the first class are commonly told to wear a crêpe bandage or elastic stocking, neither of which is an efficient palliative. Operations are not in favor because they are believed usually to fail, and this is no doubt true if surgical interference be not exceedingly thorough. The procedure originally recommended by Trendelenburg — namely, ligature of the saphenous vein—is not enough. All the tributaries of the vein at the saphenous opening must be ligatured and three inches of vein removed. Even then recurrence may take place owing to the communications on the back of the thigh between the internal and external saphenous vessels. To overcome this an incision should be made over the upper part of the inner head of the gastrocnemius, through which lengths of both veins can be excised together with their communications. This operation can be successfully applied to the less severe cases, but it entails keeping the patient in bed for ten days, in itself a serious drawback. Use has accordingly been made in Germany during the war of a method which, it is claimed, combines efficiency with rapidity. This depends on the injection of a one-per-cent solution of bichloride of mercury into the lumen of the vein at various points, as a result of which thrombosis takes place almost immediately at the sites of injection. The procedure is painless if care be taken that none of the solution leaks into the subcutaneous tissue, and it is stated that there is no risk from embolism. Should collateral veins become dilated afterwards they can be injected in the same way. Various

operative procedures for the severer cases have been devised, several of which depend upon the avulsion of the vein by means of appliances passed along their lumina through incision at either end, but such methods do not seem to be, surgically speaking, so sound as a thorough excision, even though this has to be rather extensive. The incisions are made, if possible, through sound skin, and if need be are extended along the whole length of the leg.

The second class of patients includes the numerous elderly women who display swollen and discolored legs, week in, week out, to despairing house surgeons in the outpatient departments of all large hospitals. With prolonged treatment the ulcers can be made to heal, but the underlying causes—varicose veins and long hours of standing in the course of domestic duties—are still present and the ulcers soon recur. Grafting from the skin at the edges of the ulcer has recently been recommended, but the artifice does not deal with the underlying cause. A more thorough method involves a spiral incision through the skin down to the deep fascia, beginning at the saphenous opening and ending behind the internal malleolus. The spiral thus consists of two complete turns. The incision must divide even the small transparent veins lying on the fascia, and when the bleeding points, which are not numerous, have been ligatured the wound can be sutured. A bandage should be worn for a period after the operation. This procedure has the same objection as most others, that the patient has to remain some days in bed; but there can be no short and easy road to success in so intractable a condition, and the longest cut may prove to be the shortest in the end.

Treatment of Graves's Disease.

In the *Ohio State Medical Journal* for October, 1920, HOOVER asserts that the etiology of this disease is unknown. We have very strong evidence to show it is not thyrogenic, and about all the positive knowledge we have on the subject indicates that hyperthyroidism is not associated with the disease. Should, however, the disease be thyrogenic in origin, it must be some form of dysthyroidism, but we have no direct evidence to indicate that dysthyroidism exists. Dysthyroidism up to the present moment is a mere fancy. As these patients are weak, and the ability for both mental and physical labor is very greatly reduced, the only clearly logical method of treatment is to give them rest. But what may be rest for one person is not rest for another. Confinement to bed may not amount to rest; it may be a mere annoyance. Confinement to bed may not mean rest to the patient any more than confinement in a strait-jacket will amount to rest. If the patient is discontented and unhappy, and is unwilling to coöperate on such a basis, rest will not be attained by confinement to bed. He recalls one patient with severe Graves's disease who grew decidedly worse after two weeks' confinement to bed. She was then allowed larger liberties and made a complete recovery. It may be necessary for many patients to abstain from active work over periods of one to five years, but the vast majority of them make good recoveries.

The use of the *x*-ray has received the approval of a number of writers within the past few years, but the results differ so little from those obtained by the observance of rest that he is disposed to look with much skepticism on the value of radiotherapy. It is a justifiable method of treatment and one which he employs, but thus far his experience has not been sufficiently reassuring to justify any announcement of decided success in the treatment of Graves's disease.

We must have a definite understanding of what we are treating in a case of Graves's disease. Are we treating the disease as an entity or are we treating a thyroid gland? The *x*-ray and iodine in various forms may be employed for the direct treatment of the thyroid gland, but it must not be understood that this treatment is directed against Graves's disease as a clinical entity. The only medical treatment which has seemed of value is

physical and mental rest. Such treatment allows very large interpretation on the part of the physician, and he who would treat such a patient with success must appeal to the reason of the patient; he must enlighten him in the character of the disease, and must be very artful in the employment of persuasion. In some instances symptoms may arise from the goitre, and in such cases surgical removal is advisable, but thus far he has been unable to see any justification for amputation of part of the thyroid gland as a direct treatment for Graves's disease.

In discussing the paper of Crile on this subject in the *Ohio State Medical Journal* for October, 1920, HAINES, of Cincinnati, calls attention to one very valuable method in dealing with the desperate cases. Boiling water when injected into the gland substance will be followed by a rapid subsidence of the symptoms of hyperthyroidism.

In one instance only, in his experience, has he been forced to this method; but prompt, permanent relief followed in a patient wherein one month had been spent in trying to get the patient in condition for operation. Rest in bed, *x*-ray, drugs, ice-cap over the heart, and ligation of three of the vessels under local anesthesia failed to bring this patient to a physical condition which his anesthetist considered safe for a general anesthetic.

After infiltrating the skin over one lobe with a .05 per cent of novocaine, a needle was introduced into the center of the lobe; the syringe was filled with boiling water, quickly attached to the needle and injected into the gland. More relief followed immediately after the injection of 60 Cc. of boiling water than had been obtained in one month's previous care.

Complete relief from all the symptoms followed similar treatment in the opposite lobe one week later. This patient has fully recovered except for a badly damaged heart.

The exophthalmos, tachycardia, nervousness, and jaundice subsided more promptly, as he remembers, than these symptoms do following removal of the gland.

Treatment of Recurrent Malaria by Novarsenobenzol.

In the *Lancet* of September 11, 1920, D'ESTERRE states that so much has already been written as to the nature of malaria, the clinical and other characters of the disease, and the lines of treatment found to be most successful, that he proposes to touch only on a series of cases of recurrent malaria treated by him at the Third London General Hospital, by intramuscular injections of novarsenobenzol (neokharsivan). Having seen during the last three years at least 500 cases of recurrent malaria from all parts of the world, he was struck by the fact that in all these cases the usual varieties of routine quinine treatment *(i.e.*, by the mouth, intramuscular and intravenous) had been tried, in many cases pushed so far as to produce temporary blindness and deafness, and yet upon arrival in England the patients were still suffering from the disease, as shown by blood smears and a differential count. He therefore decided to venture on another line of treatment.

His reasons for using novarsenobenzol were: (1) Because it has been conclusively proved that the malarial fevers are protozoal infections, infecting the red corpuscles of mammals, reptiles, and birds. (2) Because the organic compounds of arsenic in its trivalent form are more potent in action upon protozoa. (3) Because it is known to destroy the Spirochæta pallida, the balance of opinion now being distinctly in favor of the Spirochæta pallida being a protozoön.

The reason why the spirochætes vanish so quickly after salvarsan, or neokharsivan, is that they contain free OH groups, since in their colloidal lipoid membrane an unsaturated fatty acid exists. It is to these OH groups that the matels become attached, with the result that the organisms perish. He hoped, therefore, the same result might take place with the malarial parasite.

The preparation used was novarsenobenzol, which is easily soluble in water, yielding a neutral solution suitable for intramuscular or intravenous injection. The

first two injections consisted of 0.3 g. in 5 Cc. 0.5 per cent sterile saline, and the last two injections of 0.4 g. in 7 Cc. 0.5 per cent sterile saline. These injections are given at intervals of one week. A line is drawn backward from the anterior superior iliac spine to the top of the natal fold; this line is divided into three equal parts; the point of intersection of the upper and middle third is the site of injection. All the usual antiseptic precautions should be taken with regard to the sterilization of needles and syringe. The night before treatment the patient is given a laxative, the following morning, three hours before the injection, he is given a light breakfast, and the food on that day should be light so as to throw as little strain as possible on the digestive organs during the elimination of arsenic. The patient should stay in bed for at least three hours after the injection, and in order to prevent any after-pains or reactive painful infiltration hydropathic measures such as moist compresses, hip-baths, or the application of a hot-water bottle may be employed.

If the pain is very severe he gives the following powder, which he finds efficacious: Pyramidon, 10 gr.; medinal, 3 gr.; heroin hydrochloride, 1/12 gr. In between the injections the patient is given small doses of quinine.

In all cases an examination of the blood is made before each injection with regard to the presence of the malarial parasite, and a differential blood count to ascertain especially any increase of the large mononuclears. This is a very important feature, as in cases in which the parasite cannot be demonstrated in the blood the mononuclear reaction, along with the presence of pigment in the mononuclear cells (due to phagocytosis of pigment formed by the parasites), has been taken as evidence that the case is one of malaria. The mononuclear reaction is especially interesting from the fact that in other protozoal diseases an activity of the same elements has been observed.

He says that only three out of thirty-eight patients have reported "They think they have had a slight attack" since leaving the hospital.

Personally d'Esterre is very much gratified with the results and regrets that he did not keep more records. In cases in which it was doubtful if the malarial parasite existed in the blood he tried a provocative dose, and in several cases the desired result was obtained. He suggests that even two weeks after the blood gave a negative test, a mild provocative dose be given to ascertain whether a cure has been effected. If the disease is found to be latent a second course lasting another four weeks would be suggested.

Certain Points in the Diagnosis and Treatment of Pulmonary Tuberculosis.

In the *American Journal of the Medical Sciences* for September, 1920, BROWN states that a physician must have a sanguine temperament to deal successfully with this disease, for patient, family and friends all lose courage and grow despondent over the many disappointments that beset the path toward recovery. Bearing these facts in mind the psychologic treatment of the patient demands careful thought. Brown does not believe that it pays to temporize with the patient. He should be told at once that he has pulmonary tuberculosis. It may come as a shock and nearly prostrate the patient for a while, but the physician will be the gainer, and in the end the patient will be benefited. He does not and cannot know the difficulties ahead of him, and he doubts the advisability of emphasizing them too much at first. The patient should be told enough to gain his wholesouled coöperation and to awake in him a fighting spirit. Encourage him or depress him, or do both, but from the minute he is told of the diagnosis assume a strict attitude toward what he should do.

He emphasizes the benefits that many patients derive from proper treatment at its onset, and calls attention to the "danger time" that the patient passes through at the onset of treatment. He refers to the period

of time, usually several weeks, during which the education of the patient progresses to a point where he becomes orientated and aware of the many dangers that follow overexertion. Brown knows of no way more certain to avoid these dangers than to keep the patient in bed on a porch or in a room with wide-open windows until his education has progressed to a point that you can trust him not to overdo. He is to be told that he has specks on his lungs like those that occur in apples in March, and that while the apple must necessarily decay in order to liberate the seeds, his lung is constantly forming delicate scar tissue about these specks or tubercles which contain the germs, in an endeavor to wall them off, and, so to speak, strangle the germ in its own juices or excretions. Also that at first the scar tissue is so delicate that it resembles spider web, and that vigorous or violent respiratory exertions may stretch the delicate scar, liberate some germs which may form new specks or spots, which in turn will have to be walled off before he can hope for recovery. In short, the treatment of pulmonary tuberculosis depends upon two things: (1) the formation of scar tissue, and (2) the protection of the forming scar tissue. The conservation of energy and the conservation of natural resources are familiar to many patients. Tell them rest enables their body to devote more of its powers to form scar tissue and rest of the lungs protects the delicate scars.

In recent years Brown has come to regard rest as the most important point in the treatment of pulmonary tuberculosis. It is far better for a patient to be in bed in a room with fair ventilation for several weeks than to dress and to walk some blocks to a park where he can sit out for several hours and climb several flights of stairs to regain his room. If one can persuade his patient to do this, seize upon the opportunity to educate him. Put such literature in his hands as he can comprehend and encourage him to write down questions. Tell him frankly that your visits are as important educationally as medically. If one can get him to think out his problem, three-fourths of the battle is won. Brown usually tries to keep afebrile patients in bed six weeks. Patients with fever demand much longer periods of rest.

Exercise at the proper time is as important as rest, but even then vastly more dangerous. The scar, of course, at the end of six weeks is not densely fibrous and requires careful stretching, such as is exerted by gentle breathing. Brown does not refer to respiratory exercises, which he seldom uses. To reëducate the patient physically requires that the physician should become a physical trainer, who never forgets that he is dealing with a damaged organ that demands far more rest than a normal organ. This, too, must be impressed upon the patient. He sometimes puts it that they can play and get well or work and get well, but they cannot work and play and get well. To watch the effect of any new form of exercise, have the patient take it every other day. It has seemed that afebrile patients kept in bed six weeks could be given exercise rather early. Brown frequently allows them to take, after they are accustomed to dressing, to going to meals and to climbing the necessary flight of stairs, one-quarter of an hour's slow walking twice a day the first week, one-half the second, three-quarters the third, and one hour the fourth, provided, of course, there has been no increase of symptoms. After that if he feels that he can trust the patient he puts him on unlimited exercise and tells him never to get out of breath or to get tired. Of course, many patients do not advance this rapidly, and remain at fifteen to thirty minutes twice daily for some weeks. Such treatment is applicable only to early and favorable cases.

Since the first century of the present era, and possibly before, air or climate has been extolled in the treatment of pulmonary tuberculosis. The oxygen of the air enters the body through the lungs. So air is necessary to the lungs, it has been argued, and bad air would therefore affect the lungs deleteriously. Hence the value of good air for the diseased lungs. Curiously enough the lungs can use and do well in air in

which a man cannot live. The value of live, fresh air lies not in its effect upon the lungs, but through the effect upon the body in general. It affects the lungs no more, no less, than the knee. The value of air is exerted in what might be called the air bath. He refers to having fresh air circulate about the patient. It is better, of course, to have him out-of-doors, but Brown thinks it is better to be indoors with open windows than overexercising to get fresh air. Window tents that expose the head and neck while the body is in a warm and possibly badly ventilated room produce the same effect in pulmonary tuberculosis as spraying the face and neck in typhoid fever. Both are good as far as they go, but they stop short of the essential.

Food requirements in pulmonary tuberculosis have undergone considerable change. At first the patient was overfed, and now we realize that food has a specific object in this treatment and should be prescribed accordingly. The struggle against pulmonary tuberculosis is a fight to strengthen and to build up the recuperative powers within the individual patients. Scar tissue must be formed. Calcium salts must be deposited. The increased wear and tear of fever, which increases the caloric output of the body by 50 per cent, must be combated. At the same time such patients crave little food. The old idea was that patients needed much meat and milk. It is of interest to note that when after the war an attempt was made to put flesh on some Germans by greatly increasing their fats and carbohydrates it could not be done until an excess of meat was added to the diet. It seems that extra meat is necessary until the patient has a proper amount of protein in his body. If excess of calcium salts are necessary no food furnishes such an amount of this dietary essential as milk, combined, too, in such a way that it can be used at once by the body. The fact that the calcium content of the blood serum does not vary in pulmonary tuberculosis is no argument in his mind against its use. One may recall that the same argument was used against the use of iron salts in anemia. Is it not possible that with an increased amount of calcium in the food the blood may pass on to the tissues or scar formation an increased amount of calcium? With a judicious use of milk there is no call for any anxiety about a lack of fat-soluble vitamines in the diet of our patients, but it is of interest to note that cod-liver oil and butter-fats contain it in large quantities, while all vegetable oils and fats are deficient in it or lack it entirely. The water-soluble vitamine is practically always supplied in sufficient quantities.

Nasociliary Neuralgia.

SLUDER (*Medical Record*, Oct. 2, 1920) states that pain in the eyes, brow, and root of the nose is not infrequent. It is of various origins. Localization of the pain by the patient has not been precise. Pains of frontal, ethmoidal, or sphenoidal sinuses, or nasal (sphenopalatine, Meckel's ganglion), or supraorbital, or nasociliary nerve origin, may overlap in their sensations. This last pain was usually referred to the small district bounded by the superciliary ridge above the superorbital notch laterally, and the nasal bones below. Sometimes it extends to the tip of the nose; rarely it is referred to the eyes. Patients often complain that they cannot wear glasses because of soreness of the nasal bones. Severe pain, however, of whatever origin, may be referred beyond these limits. Pain of supraorbital neuralgia is more wide-spread. Pain of suppuration of the frontal or ethmoidal sinuses under pressure is of long-known recognition. Pain of vacuum frontal sinus origin was first described in 1900. Pain of nasal ganglion origin, referred to this district, was described in 1907; it is usually accompanied by other painful sensations. Pain of sphenoidal origin referred to this district was described in 1912; it, too, is usually accompanied by other painful sensations. Pain of supraorbital systemic toxic neuralgia is of classical description.

After describing the nervous anatomy of the parts Sluder said that this showed that

the nasociliary nerve was quite near the surface of the membrane, and was more superficial than the nasal ganglion and was more easily cocainized than the nasal ganglion. A small applicator with 20-per-cent solution sufficed. This was passed upward on the inside of the nose, being held forward in contact with the anterior limit of the nasal fossa until it reached the roof of the fossa. By this procedure it arrived automatically in the apex of the angle formed by the cribriform plate above and the anterior limit of the nasal fossa. At this point the nasociliary nerve entered the nasal fossa. When the pain in this region was of nasociliary origin such an application of cocaine would stop it in a few minutes. Should it be of the other origins mentioned above, it would not be influenced by such an application. The differential diagnosis would furthermore reveal a tender spot in the floor of the frontal sinus if it was a case of vacuum or purulent frontal sinus origin (Ewing's sign). His observation so far has been that nasociliary neuralgia has usually been a transitory phenomenon in the course of cases which had been under observation or treatment for something else. The nasociliary neuralgia would appear from time to time in the course of other clinical conditions, and was usually not obstinate. It would yield to cocainization and applications of dilute carbolic acid. Four times, however, he had seen it the only clinical phenomenon. Once he had injected the nerve trunk at its entrance into the nose, with relief to the patient. The technique was that first advocated by Stein in his alcohol injection treatment of hyperesthetic rhinitis. A straight needle was passed upward in the nose in the same way as the applicator for cocainization and a few drops of 95-per-cent alcohol with 5-per-cent phenol was instilled into the nerve trunk at its exit from the ethmoidal slit.

Surgical and Genito-Urinary Therapeutics

Appendicostomy and Cecostomy for Intestinal Stasis in Epilepsy and Neurasthenia.

WHITE (*American Journal of the Medical Sciences,* August, 1920) reports cases thus treated, holding that a long, thorough medical treatment under the best conditions should precede any thought of surgical methods.

Other things being equal, the greater the delay in emptying the colon the more suitable these cases are for surgery, but colon stasis is far from being the only factor to consider. The operation of cecostomy or appendicostomy is probably justified in carefully selected cases, but it is largely experimental at present.

Only a fraction of one per cent of cases of intestinal stasis are obstructive or organic, the rank and file are functional, atonic, and ptotic, and therefore appendicostomy or cecostomy was chosen for these patients in preference to colectomy, because they are much simpler operations, and more suited to the simpler type of non-obstructive case. They are free from the objections of the short-circuiting operations and are far less serious than a right colectomy.

There are some purely local after-effects of this type of operation which may be important in neurotic and sensitive persons. There is often a disagreeable amount of fatigue and disability in a nervous woman from any operation whatever, which may last for weeks or months. In addition any colostomy may be disagreeable, there may be some local irritation, a little pus discharge about the wound, slight odors, some local pain at first so they cannot walk about—all of which are disagreeable to a sensitive woman. The after-effect must be good enough to overcome all these features.

The actual results of the operation and

subsequent lavage are difficult to judge in this class of patients; the firm belief of the patient that something definite is being done to help has a marked effect, which is purely psychic; and we must also remember that a remission of epileptic attacks may follow any surgical operation of whatever sort.

The immediate effects of the operation were not important in most of the cases and the convalescence was reasonably prompt and easy. In one neurasthenic patient the immediate effects were trying. For several months after the operation she was very nervous and tired, and there was considerable local irritation from the wound which prevented walking about.

The late results have been as follows: Both neurasthenic patients considered the operation a real help; in one a definite improvement in symptoms, such as headache, dulness, and fatigue, occurred; intestinal gas, formerly very troublesome, almost disappeared; sleep improved; attacks of depression disappeared. In the other neurasthenic case, while the operation was very simple and easy and convalescence rapid, the end-result was not satisfactory. The patient had many nervous and mental symptoms and could not be said to be really improved at all in spite of the fact that the irrigation was very simple and easy and thorough, and in this patient the mental condition was for a time precarious. After ten months the patient complained much of discomfort in the neighborhood of the opening and also from the dressings, so the appendix was removed and the abdomen closed. Her mental condition has continued to improve slowly under careful sanitarium treatment.

The results in the epileptic cases were as follows: In the first patient, who has also chronic nephritis and who had been having attacks three or four times a year, the attacks entirely stopped for a period of eight months after the operation. Since that time they have occurred again in a slightly milder form than before and rather more frequently than before; the two attacks in the last six months have been very mild.

The other epileptic patient, a more serious case, in whom the attacks were frequent and severe before operation, averaging one to a month, had no attacks for two months after operation; then the attacks continued just as often as before, though some were not as severe.

There have been no marked changes in physical signs in any of these cases, except that one patient gained 15 pounds. Two patients were recently examined to see if the action of the colon had become more prompt and satisfactory than before. The author tried to judge of this by a Roentgen-ray examination, and it was found that, when examined at the end of thirty-six hours, the food and barium had made better progress through the intestine than before the operation, and that the right side of the colon was much better emptied out. Both patients, however, were somewhat behind the average normal schedule for emptying the colon.

Paths of Spread of Bacterial Exotoxins.

TEALE and EMBLETON (*Journal of the Royal Army Medical Corps,* August, 1920) as the result of a laboratory study conclude that although tetanus toxin ascends to the central nervous system by way of the axis cylinders of the nerves, it also to a very great extent passes up the nerves to the cord by the way of the perineural lymphatics. Blocking of the latter paths greatly delays and in some cases completely prevents the occurrence of tetanus in the part corresponding to the nerve whose lymph path has been blocked.

Although tetanus toxin passes rapidly from the blood-vessels into the connective tissue spaces and thence to the thoracic duct, the toxin does not pass from the capillaries of the central nervous system to the tissues thereof.

Tetanus toxin does not pass from the choroidal plexus to the cerebrospinal fluid.

Although bacteria can pass through the

posterior root ganglion to the cord, colloidal pigments and tetanus toxin are prevented from doing so.

Iodine, although it prevents tetanus toxin from producing its characteristic effects when iodized toxin is inoculated subcutaneously or intravenously, does not affect the toxin when inoculated intracerebrally, it does not hinder the occurrence of the typical symptoms of cerebral tetanus, and there is no apparent diminution in its toxicity.

Tetanus antitoxin does not pass to the central nervous system either by way of the blood-vessels, axis cylinders, or neural lymphatic channels. It also cannot pass from the cerebrospinal fluid when inoculated intrathecally into the substance of the cord. The antitoxin simply acts by combining with the circulating toxin, and that at the seat of production, and prevents it from reaching the central nervous system.

Roentgen-Ray Burns.

WITHERBEE (*American Journal of the Medical Sciences,* August, 1920) states that the maximum number of exposures in a given case that can be made without producing a Roentgen-ray burn, an erythema, or a temporary or permanent alopecia can be obtained by the formula used for determining unfiltered dosage. The principle of this formula is based upon the fact that Roentgen-ray burns, alopecia, etc., depend entirely on the quantity of a Roentgen ray reaching the skin, as pointed out by Remer and Witherbee in June, 1917. He gives the formula in detail and the practical method of using it. He states that it is obvious that the head, kidney, bladder, pelvis and lumbar spine are the regions that require the larger doses to obtain results. If a case of this kind is passed on from one Roentgen-ray laboratory to another, in a comparatively short time, and standard exposures made in each place, a Roentgen-ray burn may occur.

Roentgenologists, and especially those who specialize in the branches in which these large doses are required to obtain good plates, would appreciate a complete Roentgen-ray history as well as clinical history of these cases. By a complete Roentgen-ray history is meant the time the plates were taken, the position of the patient, the factors used in making the exposures, and the date of the last examination. With these data the roentgenologist could determine at once how soon it would be safe to proceed with his examination, instead of waiting three or four weeks from the date of the last exposure in order to avoid either increasing an already produced burn or adding enough more to produce one that otherwise would be a safe and sane exposure.

Erythema appears in from ten to fourteen days, so that at the end of three weeks one is safe in concluding, if the skin appears normal, that the exposure the patient has had was not sufficient to produce an erythema. But the dose may have been of such intensity that by adding the large amount necessary for the second examination may induce an alopecia or erythema by the combined exposure. If an erythema or temporary alopecia has occurred during the third week after the first examination it would seem advisable to wait at least six weeks from the date of the last exposure.

From a medicolegal standpoint it would seem assured that the defendant would be in a much better position to defend himself if he knew his factors and the valuation of the same in determining the cause of Roentgen-ray burns.

Hemorrhage Following Hemorrhoid Operation.

GABRIEL (*Lancet,* July 17, 1920) upon an analysis of 500 cases of internal hemorrhoids operated on at St. Mark's Hospital in the course of the last sixteen months states that ligature was employed in 470 cases, clamp and cautery method on 18, the Whitehead operation on 12.

Four hundred and eight ligature cases gave him two postoperative bleedings within eight days, and eleven usually occur-

ring at the end of a week. Eighteen cases of clamp and cautery gave him one slight hemorrhage one day after operation. The Whitehead gave him one slight hemorrhage.

What he calls the intermediate hemorrhage, that is recurring within one or two days of operation, is caused by the slipping of a ligature, or by persistent bleeding from a small vessel not ligated at the time of operation, or in which the thrombus has become loosened as the result of coughing, vomiting or straining at micturition. In each case there was considerable oozing during the night following operation, necessitating one or more changes of the outer dressing, requiring active treatment in the morning. Hypodermic injections of morphine were given with general treatment, and the bleeding was controlled efficiently in each case by plugging the rectum. A vulcanite tube was inserted in two cases; the third was plugged with a rubber tube and a wool "surround." The tubes were removed after twenty-four hours, and no further bleeding occurred.

The routine injection of 5 ounces of sterile olive oil was given into the rectum on the second evening after operation, and castor oil 1 ounce was administered orally on the third morning.

The operative technique is the most important factor in the avoidance of intermediate hemorrhage. In the ligature operation in particular, care should be taken to keep the scissors accurately in the submucous plane in order to avoid dividing vessels unnecessarily; the distal portions of the ligated piles may be left *in situ*, or, if part is cut away, an ample amount should be left to insure that no slipping of the ligature can take place.

Secondary hemorrhage is an uncommon complication which cannot be anticipated, and unless the possibility of its occurrence is kept in mind, a large concealed hemorrhage may occur before the condition is recognized. In this series five cases of serious secondary hemorrhage followed a ligature operation, four on the seventh and one on the eighth day after operation. In addition there were eight other cases of slight secondary hemorrhage after defecation, of no special consequence and requiring very little treatment; seven of these followed a ligature operation.

A secondary hemorrhage is brought about by premature separation of the sloughing pile. After the ligature operation the ligatures separate normally between eight and twelve days after operation. In this series the average date of the secondary hemorrhage has been seven days after operation. The chief factors in the causation of the hemorrhage are: (1) infection, (2) trauma, (3) anemia and general debility. To these may be added, rarely, blood diseases such as hemophilia.

Concerning the symptoms of hemorrhage it is important to note that in the author's cases there were no premonitory symptoms in these five cases of severe secondary hemorrhage. The relation of defecation to the hemorrhage varied, but usually the bleeding first occurred at or immediately following defecation. The only local sign was usually a slight intermittent or continuous trickling of blood from the anus, giving absolutely no indication as to the size of the hemorrhage concealed. In one case a constant tenesmus was complained of, the patient straining down and passing fluid and clotted blood at short intervals. Local pain was usually present, possibly caused by the tension of blood in the rectum, the sphincter being always tightly contracted.

Each case presented to a varying degree the general evidences of loss of blood.

If a patient passes a small amount of blood with a stool, he should be confined to bed until the next stool and watched. If there is a small, continuous oozing of blood from the rectum, or a slight recurring hemorrhage at stool, or the least suspicion of any of the recognized symptoms of hemorrhage, the insertion of a speculum will infallibly demonstrate whether or not there is bleeding into the rectum with retention.

A Kelly speculum is sterilized, and after lubrication with sterile vaselin is passed

gently into the rectum; on withdrawal of the obturator a concealed secondary hemorrhage, if present, is at once made apparent. A finger passed into the rectum gives no information of any value, and the passage of a small drainage-tube for diagnostic purposes is not to be recommended, since it is liable to be obstructed with blood-clot. The tubular speculum affords the most certain diagnosis.

The lower rectum should be irrigated with one or two pints of normal saline or lysol solution at 110° F. A light is then directed into the speculum, and an attempt is made to localize the bleeding vessel. The sloughs resulting from the operation are usually still present, and, together with the ligatures and entangled blood-clot, make identification of the vessel difficult. The bleeding was definitely arterial in each of the cases of large hemorrhage, but in only one instance was the writer able to find the bleeding point; this patient was anesthetized and the vessel ligated. The remaining four cases were treated by plugging the rectum; this proved efficient and should be successful in all cases; it is easier and quicker than ligation of the vessel, which has to be done under general anesthesia and is rarely practicable.

The Results of Surgical Treatment of Exophthalmic Goitre.

JUDD (*New York State Journal of Medicine,* September, 1920) observes that in outlining the treatment for hyperthyroidism it must be remembered that the disease occurs in attacks. A careful consideration of the relative time of the attack gives a suggestion as to how the treatment should be carried out. The time of instituting surgical treatment is the most important factor in estimating the immediate and the ultimate results. Although the degree of hyperthyroidism may not seem excessive, if the symptoms are quite rapidly increasing in severity—that is, if the nervousness is progressing and strength and weight are decreasing—the patient is on the downward wave of an attack, and no radical surgery should be undertaken at this time.

The high mortality of the early operations for hyperthyroidism was due largely to the fact that the operation was undertaken when the disease was progressing rapidly; it was believed that unless something was done to abate the condition it would go on to a fatal termination. It is true that fatalities will occur in some cases regardless of the treatment employed, but all cases considered, more patients will be saved if the simple palliative measures are resorted to during the progress of the attack, instead of the radical operation. Many more patients will eventually recover if they are carried over the climax of the attack by rest, increasing elimination, hot water and quinine-urea injections into the thyroid gland, and ligation of one or more of the thyroid vessels. Ligation of these vessels helps more than any of the other palliative measures, but it must not be done in the most extreme cases, at least not until the simple procedures have been tried. All of these measures must be considered as palliative, and should be used only with the idea of temporizing during the particular attack.

Until recently we depended entirely on the clinical picture and physical findings by which to estimate the degree of toxicity in the cases of hyperthyroidism, but in the past few years it has been shown that the toxicity may be measured accurately by the changes produced in the basal metabolic rate. The basal metabolic rate is always increased in cases of hyperthyroidism, and decreased in cases of hypothyroidism. While some unknown factors may enter into the problem of hyperthyroidism the changes in the metabolic rate are characteristic and give an accurate method for the determination and estimation of the degree of thyroid toxicity.

For practical purposes, in deciding the plan to follow in the treatment of a case of hyperthyroidism, a study of the clinical features is most important. Usually the metabolic rate is increased in the propor-

tion indicated by the clinical symptoms, so that the degree of hyperthyroidism estimated by clinical features and by the metabolic rate is the same. In certain cases, however, the two do not coincide; for instance, the pulse rate may be so high as to indicate a marked degree of hyperthyroidism, and the metabolic rate may not be high, or the converse may be true. If these findings do not agree the palliative measures should be employed first, even at the risk of being too conservative. The basal metabolic rate, accurately determined, is a very definite estimate of the disturbance in the thyroid, and is of great assistance in estimating the degree of hyperthyroidism and hypothyroidism. In the future it will be very valuable in a study of the results of the treatment of these conditions.

No specific medication has had any definite influence in hyperthyroidism, although a systematic course of rest, increase of elimination, and a regular diet may have such a marked influence on the progress of the toxemia that the patient will eventually almost recover. Beside this so-called rest treatment, a great deal has been claimed of late for the Roentgen-ray and radium treatment. Judd's experience in these cases has been largely with the surgical treatment. but the rest treatment has been employed in many cases, sometimes over a long period of time, and in a number of instances radiotherapy has been added. So far the results of these conservative methods have been helpful and encouraging up to a certain point.

The importance of removing the gland in the fairly early stages is becoming manifest since it prevents the gradual development of some of the terminal conditions which frequently occur in these cases and which prevent complete cure. By means of thyroidectomy changed thyroid tissue is removed which could not return to normal.

It is difficult to determine the time when these patients may be called cured, or when they will have no further relapses. It will require studies of series of cases some years after treatment to learn the effect of the treatment and the ultimate results; and it may be necessary to have the metabolic rate estimated to be sure that there is absolute freedom from the influence of a disturbed thyroid.

A few instances have been reported in the literature of results in a series of cases a number of years after the treatment. Means and Aud, in a recent article, have shown in detail the influence of *x*-ray treatment. Their results were estimated largely by metabolic studies, and were compared with a series of cases in which surgical treatment had been given. They concluded that results from *x*-ray treatment are more satisfactory since there were no fatal cases, and that ultimately, especially as far as the metabolic rate was concerned, the results were about the same as in cases in which operation was done. The report is interesting and seems to show that the *x*-ray has some influence on thyroid activity.

Mortality following surgical treatment is due principally to an increased hyperthyroidism which occurs in spite of treatment. There is practically always an increase in the hyperthyroidism immediately after operation. Patients who come for treatment while they are at the height of an attack or who are getting rapidly worse are not good surgical risks, and it is best to try to carry them past the crisis before operation. A review of Judd's early cases is interesting in showing that most patients who did not survive the operation were those who were operated on at the time of a crisis. Unfortunately, however, not all patients will survive if they are not operated on. In our experience some patients grow progressively worse in spite of treatment, and each year a number of patients are treated in which we are unable to stop the progression of the toxemia. A larger percentage of patients die at this time if they are operated on than if they are treated by rest and increased elimination. Some mortality in hyperthyroidism is unavoidable.

Judd with the help of Dr. Arnold Jackson has recently reviewed, as accurately as possible, the results obtained in 100 consecutive cases of hyperthyroidism in which op-

eration was done in the year 1914. The present condition of the patient had to be estimated, to a certain extent, from replies to letters, although many of the patients had been seen and examined repeatedly since their operations. The mortality in the cases in which a thyroidectomy was performed was 2 per cent.

Of this group of 100 consecutive patients operated on in 1914, Judd has been able to trace more than 90 per cent. Sixty-six per cent of these are free from all signs of the disease, at least six years after the operation. Similar findings were noted several years ago in a report of their patients operated on in 1909. In both instances, besides the patients who were completely cured, there were a number who were free from all symptoms of the disease most of the time, or they were so much improved that they considered themselves practically well, although they had some evidence of hyperthyroidism. Apparently the last symptom to disappear is the exophthalmos, which is present in about 70 per cent of the cases before treatment. Slight nervousness persists for some time after most other symptoms have disappeared. In addition to the 66 per cent of patients who were cured, 13.5 per cent reported that they were markedly improved, and 5.5 per cent that they were slightly improved. Metabolic studies were not made of these patients before operation. Eleven of the 100 patients died after leaving the clinic. Most of the patients were much better for some time, and were apparently cured of their hyperthyroidism. Several, however, died in relapsing attacks.

It happened that not one of the 100 consecutive operations performed in the beginning of 1914 was a secondary thyroidectomy for a recurrence. During the entire year, however, 387 operations were performed for exophthalmic goitre; fifteen (3.8 per cent) were secondary thyroidectomies for recurrences that had taken place within an average of twenty-two months after the primary thyroidectomy.

The series studied in 1909 showed only 45.4 per cent cures; in the series in 1914, 66 per cent were cured. A possible explanation of this difference is that in the later series of cases more than one lobe of the gland was removed. Judd feels sure that the subtotal thyroidectomy now performed will produce much better immediate and ultimate results than were formerly obtained by the lobectomy.

Those especially interested in the medical treatment of goitre have commented adversely on the cosmetic results of these operations. This criticism was a just one some years ago, but modern technique has improved greatly, both with regard to the manner of making the cervical incision and the manner in which the different tissues of the incision are closed, so that the scar following an operation for goitre is usually much less conspicuous than it was formerly. It is not nearly so noticeable as a slight enlargement in the thyroid gland which usually occurs following any other form of treatment, and should not be considered a contraindication to operation. One distinct advantage of subtotal thyroidectomy over lobectomy is that it leaves a symmetrical scar. Lobectomy should only be performed in those cases in which a subtotal thyroidectomy would seem to be too severe a procedure for one stage. In the very severe cases, especially those in which the toxemia has resulted in a dilatation of the heart with broken compensation, lobectomy should first be done on one side, and then on the other, as soon as the reaction from the first procedure has subsided. Just enough thyroid tissue should be saved to maintain normal function.

Cancer of the Bladder.

SQUIER (*International Journal of Surgery*, August, 1920) calls attention to the fact that untreated cancer of the bladder has a mortality of 100 per cent. When operated upon, nearly always late, the immediate postoperative death-rate will be somewhere between 20 to 40 per cent, but some few cases recover and remain well for years. He prefers knife incision to cautery.

Barringer reports a case of cancer of the

bladder treated by radium. The first operation was in 1917. It was probably casual. The operator's name is not given. There was rapid recurrence. He was therefore fulgurated a number of times. Eighteen months after his first operation he had complete retention of urine requiring catheterization. A tumor the size of an orange was removed through a suprapubic opening. The seat of this tumor was cauterized and planted with radium seeds—*i.e.*, little glass tubes of radium emanation as large as the sharp end of a pin and about one-sixteenth of an inch long. These were placed in a needle which was forced into the base of the tumor and the tubes were left there. One dose of radium was administered through the suprapubic wound. The patient recovered and left the hospital, and has been well for a year and has gained 71 pounds. There are a few very small papillary growths within his urethra. They look like simple papillomatous growths.

Hyman records three cases of cancer of the bladder treated by excision. The first case was operated on in 1916 and remained well ever since, though this required resection of the ureteral orifice. The third patient lived for three years.

Hyman emphasizes the following points of technique:

First, a large median incision from the umbilicus to the symphysis.

Second, free mobilization of the bladder so that it can be brought out on the abdominal wall. All this is done extraperitoneally.

The third point is not to open the bladder until it has been fully mobilized. Then it is important to pack off the wound carefully, so as to avoid the danger of implants from the growth. He prefers to open the bladder without distending it with fluid, so that there will be no leakage of infected contents with the danger of spreading carcinomatous cells around.

The bladder is opened with the cautery and the growth thoroughly cauterized. Finally, after the tumor has been widely resected (also with the cautery), the edges of the bladder wound are again seared and the bladder and abdominal wound are flushed with 75-per-cent alcohol. The edges of the bladder incision are inverted and closed with two layers of sutures, allowing space for a drainage tube.

Operative and Non-operative Treatment of Tuberculosis of the Spine.

STONE *(Journal of the Missouri State Medical Association,* September, 1920) was largely impressed by the obvious success of bone graft in these cases. He states that it was felt that at last a real means for preventing terrible hunchbacks and curing spondylitis had been found; but gradually a little doubt began to creep into his mind, and as time went on it became a conviction. Operative cases were not doing as marvelously as reports had led him to believe they would.

It must be distinctly kept in mind that in this paper he is considering only children who have not passed fourteen years. This age was not set arbitrarily to exclude any certain group, but for scientific purposes. In the dispensary fourteen years is the limit for pediatrics, nor is any one over this age admitted to the Children's Hospital.

The total number of cases reviewed is sixty-five. Thirty-three were operated on in one way or another, while the remaining thirty-two received what Stone called conservative treatment. Many cases treated have been excluded because they have been under his care an insufficient length of time to make just comparison. The total number, sixty-five, is taken from the records during practically the same period of time.

Under this heading are included those children who were given support of various kinds and of recognized efficiency, according to the individual requirements of the child. If, when first seen and examined, the child presents only symptoms of beginning tuberculosis it is given a plaster jacket and restricted in its activities. The length of the jacket varies with the portion of the spine involved. The higher up the process the higher the jacket, covering shoulders, supporting the chin, or includ-

ing the head, if found necessary. Possibly some other contrivance is used to take the place of a head plaster when the destructive process is very high up.

The patients presenting very acute symptoms at first or later are kept recumbent on a gas-pipe frame or plaster bed, possibly with some form of traction, until such symptoms have subsided, then ambulatory care is instituted. In the later stage a simple back brace is given, and as the cure progresses this is left off at night and then for gradually increasing periods. No set length of time may be given for the continuance of treatment, and it is necessary at times to begin all over because of an exacerbation of symptoms.

No attempt has been made to go into this treatment in detail; it's an old story and may be read in any text-book on orthopedic surgery. However, it was thought best to outline briefly what is meant by the term "conservatism." Abscesses are taken care of as they develop.

These children number thirty-two and range from two to thirteen years of age. None have been considered in this classification unless treated over a long period of time. Eight of them had marked deformity when so-called healing had taken place. Ten others have kyphosities less deforming, while fourteen have what may be termed very good backs and a small kyphos.

One boy also had a tuberculous hip, and after being in what the author thought a fair condition following more than four years of care, came into the clinic after a three days' illness and died suddenly while in the clinic. No necropsy was obtained. Another, who had been under observation for a number of years (seven or eight), got so he had difficulty in walking. Being about seventeen years old and full of wisdom, he heeded not. Paraplegia came on. A long period of recumbency was necessary to bring about improvement. Six, or 18 2/3 per cent, had abscesses. This very closely approaches the percentage of 19.7 given for a series of 380 cases. The author has not deemed it necessary to state either the region or duration of the ensuing sinuses.

In the operative group are thirty-three. Eight cases were done according to the procedure of Hibbs, which consists of breaking down the spinous processes and destroying the articular surfaces of the laminæ. Four of these eight had abscesses later. Twenty-four of the group were operated after the method described by Albee—that is, a bone graft was taken from the tibia and inserted into the split spinous processes of the vertebræ and anchored there. Ten of the these twenty-four were later complicated by abscesses. One died of shock the day of the operation. Two died within three months of tuberculous meningitis. A fourth died a year after operation. Another child went to a different hospital, where, under anesthesia, a fairly large kyphos was forcibly straightened; the child died promptly, making a total of five deaths as against one. One developed total paralysis of both legs one and one-half years after operation.

The author learned immediately that cases operated on could not be let go without some kind of support. A very few were given braces and did nicely, but, as all know, some tuberculous spines get along very well with a small amount of care. There have been only a few cases in which support has not been necessary for three or more years. Three did remarkably well; one seen four years after support had been discontinued was in fine condition. The fact is care has had to be continued as if nothing had been done. Tracings were made to show that deformity had increased in some.

It may be asked, were not only the worst cases operated? No, such was not the fact, for children in good condition, either with small or large kyphos, were done as well as those who were in poor condition and had a deformity either small or large. Symptoms were not taken into consideration. It was thought this procedure was the best thing for them, and, where consent was obtainable, the operation was done. At least one child had done poorly, its general health being bad. The parents had not been coöperative. Consent was obtained

and a bone graft done. This one has improved steadily, three years after treatment with recumbency, plaster jackets and braces having been carried out.

In conclusion he states that about 19 per cent of Pott's disease treated in the usual way developed abscesses.

Fourteen, or over 42 per cent, of thirty-three operative cases had abscesses. Operation has not prevented increase in deformity. After-care must be carried out during as long a time following operation as if nothing had been done. Mortality of operative cases was 15 per cent. Ankylosing operation for tuberculous spine in children is not to be recommended.

The Induction of Premature Labor.

Sir John Phillips *(Lancet,* Oct. 9, 1920), after an interesting history of the induction of labor for the preservation of maternal and fetal life, speaks with some enthusiasm of laminaria tents which if kept in alcoholic solution 1 to 1000 remain aseptic over a long period. In the afternoon the laminaria tents are introduced into the cervix, from one to three of the long variety, fresh from the solution, and within 18 hours are removed, when the cervix will be found to admit a finger, also quite soft and dilatable, enabling one to insert, after a little digital dilatation under an anesthetic, a small de Ribes bag.

He summarizes his results in 161 cases, recording seven deaths of mothers and twenty-four of children. His maternal deaths were due to acute bronchitis (1), multiple fibroid with twins (1), contracted pelvis and acute yellow atrophy (1), ventrofixation and bilobing of uterus (1), placenta previa (1), acute albuminuria and eclampsia (2).

With regard to the maternal deaths, none of them can be attributed to the actual induction, as a fatal result would, in all probability, have occurred without the operation; induction of labor may therefore be looked upon as a procedure which, *per se,* should be unattended by any mortality.

The writer believes that in cases in which rapid delivery in a primigravida is necessary, such as in puerperal convulsions and complete placenta previa, it would perhaps be preferable to perform Cæsarian section, but should the case be that of a multipara digital dilatation and a de Ribes bag would be the best course to pursue. If there is no urgency and the case can be taken deliberately, bougies, followed by digital dilatation or a de Ribes bag, is the preferable course.

The Open Method of Nitrous-Oxide-Oxygen Anesthesia.

Gwathmey (*American Journal of Surgery,* October, 1920) calls this method "open" in contradistinction to the face mask and rubber bag method usually employed in administering nitrous oxide and oxygen, and in which air is excluded as far as possible. The "open method" referred to in this paper is the equivalent of the drop method of ether, the mask of which is usually so covered with towels that it is hard for an onlooker to understand why the term "open" is used in connection with it. Gwathmey's mask is also covered with towels, nevertheless the method seems to offer certain advantages over the usual closed method. It is not intended to take the place of the usual method of employing nitrous oxide and oxygen, but is offered as a substitute for the "open-drop" or any other method of administering ether, and also as an aid in anesthetizing certain patients to whom the closed method seems a burden.

A mask is used just twice the size of the Mayo mask, and is sufficiently large to hold a full inspiration of an adult. With a larger mask it might be possible to fully anesthetize a patient with the gases alone, although this is not desirable, if the theory of narcosis is correct. The open method may be used with any gas-oxygen machine, as all machines have attachments in which may be placed the additional medication needed with the open method.

The mask, upon which has been placed several layers of gauze, scented with the essence of orange or oils of bitter orange

peel, is placed in position and the patient told to breathe, through the mouth if possible, but in any easy and natural way. Under no circumstances should straps or holding bands be placed on the patient, either at this or any other time. If any sensory reflexes get through to the brain, requiring restraint, then we have not a true anesthesia, and the sooner we drop the agent or technique that requires this additional help and have our inhalation anesthesias approach the same perfection that is attained with good local or spinal analgesia, the better it will be for our patients and ourselves.

The objects of all methods of anesthesia, whether local, regional, or general, are to isolate the brain during the operation, and to leave the patient in such condition that little or no reaction is possible afterward.

The anesthetic is started with three holes of nitrous oxide and one of oxygen; in ten or fifteen seconds the anesthol valve is turned slightly, just enough to have the gases barely bubble through, and from this on it is very gradually increased until there is a slight bead on top of the liquid; time, one minute to a minute and one-half. The patient is now unconscious but not anesthetized. The technique from this on will vary with the substances to be used in connection with the nitrous oxide and oxygen. If only nitrous-oxide-oxygen and anesthol are to be used, the anesthol is turned on just a little more until the breathing of the patient is automatic, when it is turned back to the second position. The oxygen valve is now turned to the second hole and the oxygen and nitrous oxide remain thus proportioned throughout the operation, the depth of anesthesia being regulated by the anesthol. Toward the close of the operation the anesthol is turned off, and it will be found that the patient will be very easily kept under with the gases alone. Finally the nitrous oxide is turned off and the oxygen alone allowed to run for two or three minutes through the third and fourth holes, but not until the patient is entirely conscious. The mask is now removed, and within a few minutes the patient can answer questions intelligently, but is best left undisturbed to sleep through the pain zone, which usually lasts from one to two hours. The return of the brain to its usual activity is as if from a quiet night's rest and with no reaction afterward.

The method just described is the simplest, and the management of the gases is the same throughout, but the technique may vary as follows:

If the second container holds ether, this valve is turned on slightly as the patient becomes unconscious, or at the end of a minute and one-half. If the swallowing reflex asserts itself, it is turned off again, and this movement is repeated until there is no swallowing reflex, when the ether is allowed to remain on. The anesthol may be turned off at this time, and gas-oxygen-ether used throughout, or gas-oxygen-anesthol and ether. If, instead of ether, the second container holds three to four drachms of paraldehyde, this valve may be turned on gradually to full at the end of a minute and a half and the anesthol turned off. The nitrous-oxide-oxygen is allowed to blow over the top of the paraldehyde. If the narcosis becomes too light, the nitrous oxide may be increased for a short time, or the anesthol may be turned on again, the narcosis being easily regulated in either of these ways. With any of these methods the patient's transition from consciousness to full surgical anesthesia is smooth and tranquil and the stage of excitement or struggling is omitted. The time required to reach full surgical anesthesia is from three to five minutes.

Paraldehyde combines very readily with nitrous oxide and oxygen, and while small amounts not over one drachm per hour are taken up when used as described above, this small amount makes an appreciable difference in the perfection of the anesthesia and in the comfort of the patient afterward. With any of the technique described the patient is fully oxygenated at all times, has a pink color from start to finish, and blood-pressure is even.

The theory upon which this special form of anesthesia depends is based upon the

fact that each of the agents used affects the nervous mechanism in a different place and in a different way, with a resultant anesthesia that is more nearly perfect than if any one agent is used.

It seems, from clinical experience, that the brain is better protected from shock or sensory impulses when a number of narcotics and anesthetics are used than when some single agent is employed. The following data would seem to prove this hypothesis. A certain dental specialist in New York City, who has extracted over 80,000 teeth during his professional career, uses a 50-per-cent mixture of paraldehyde and anesthol in connection with his nitrous oxide and oxygen, merely passing the nitrous oxide and oxygen over this mixture. Each patient gets in addition to the nitrous oxide and oxygen approximately 00 drops of paraldehyde, 00 drops of chloroform, 00 drops of ethyl chloride, and 00 drops of ether. This estimate is based upon the supposition that anesthol is what it is claimed to be, that it combines in stable chemical union 35.89 per cent of chloroform, 17 per cent of ethyl chloride, and 47.10 per cent of ether, with a boiling point of 40°C. (104°F.). The usual time of administration is one and a half minutes, with a resultant anesthesia so perfect that this dentist has one and a half minutes in which to do his work. Where formerly a large surcingle was used for certain classes of patients, athletes and alcoholics, for the protection of both patient and dentist, this has now been discarded and is never used. Not only is the resultant anesthesia more perfect than when the gases are used alone, but the patients leave the chair and walk from the room usually unassisted and without nausea, headache, or vomiting. This dentist states that under no consideration would he go back to the old method of using the gases alone. The new method is not only better for the patients, but this operator states that he himself walks from his office after a hard day's work feeling entirely different from the bedraggled condition in which he formerly lived.

The clinical experience of one with 80,000 cases to his credit cannot be discarded lightly. The open method of nitrous-oxide-ether or nitrous-oxide-oxygen-anesthol-ether can be used wherever oxygen-ether has been used in the past. Dr. Lumbard, who uses oxygen-ether quite extensively, states that the average amount used with this method is three and one-half ounces per hour. Dr. J. C. Gates, of New York City, states that the average amount used with this method is one ounce of ether per hour in addition to the anesthol required in the induction. The principal objects in using this method are to abolish respiratory difficulties during operation by obtaining more complete relaxation than is usual with any closed method, and at the same time reduce to a minimum the disagreeable after-effects obtained with ether as usually administered. These objects have been in a very great measure realized; but the last word has not by any means been spoken either on this particular technique or on any other method or agent used. This method is merely offered as a simple, safe and efficient way for those who have not had the technical training necessary for the closed method, or for those who wish to improve their technique in administering ether, or who wish to test in a perfectly safe or sane way the theory annunciated in this paper, that a combination of narcotics and anesthetics isolates the brain from reflex stimuli more thoroughly than any other method of general inhalation anesthesia now in common use.

Removal of Missile from the Right Ventricle of the Heart, with Recovery.

LUCKETT (*Surgery, Gynecology and Obstetrics,* October, 1920) reports the case of a patient shot just before admission to the hospital. There was a penetrating wound of the first intercostal space of the left side, about three-fourths of an inch from the sternum. There was also a superficial seton wound two inches long in the left lumbar region, posteriorly. Examination of the lungs showed decreased breath sounds on

the left side. Examination of the heart negative. With oxygen injection in the abdomen, an *x*-ray picture was taken and indicated a missile in the heart. This was verified by fluoroscopy, which showed the foreign body pulsating. A five-inch incision was made in the sixth intercostal space, thoracotomy was done, and the wound held open by a Tuffier rib spreader. The missile was faintly palpated in the right side of the heart near the apex. There was no blood in the pleural cavity. The pericardium was opened on the left side. It was found to be free from blood. The heart was delivered through the pericardial incision and rotated forward from right to left and upward. A cut was made down to the missile, which was extracted; this was followed by a free gush of blood, controlled by catgut sutures. The pleural cavity was drained. There was no particular shock or any complication until the fourteenth day, when edema of the lungs developed. Later there was drainage from empyema. The patient made a complete recovery.

Cresol.

BEVERIDGE *(Lancet,* Oct. 2, 1920) states that the system of disinfection adopted in the German army was similar in many respects to the English and their allies, and hot-air disinfectors were largely used by them on the western front. In order to prevent the introduction of infectious disease into Germany from army fronts, the supreme command issued very stringent regulations by virtue of which all officers and men before entraining were required to proceed to a disinfection center, where they were inspected, bathed, and had all clothes and baggage submitted to disinfection. The time allowed for disinfection from the time of arrival of a train until departure of a "clean" train was limited to eight hours; all intercourse between the disinfected and those not disinfected was prohibited, and men were kept under medical observation for the remainder of the journey.

With regard to the use of chemical disinfectants, it is noteworthy that few are really necessary in war-time, even though their efficiency has been proved beyond doubt. It is well that this is so, for chemicals at all times are difficult to transport, requiring special packing, and many are also costly. In France disinfectants were sent up the line from base ports daily with the divisional pack, *i.e.,* the train carrying the daily rations, and found their way with the food to the divisional areas and the trenches themselves. It may be noted that reliance was placed upon three disinfectants —cresol, formaldehyde, and chloride of lime or bleach.

Cresol is probably the most valuable disinfectant for general use in the field; it has many advantages in addition to the ordinary use as a disinfectant. In hot solution it can be relied upon to kill lice and their ova. It has proved a valuable deodorant, and is also efficacious under certain conditions for the destruction of flies and their larvæ.

Major Mayne found that an emulsion of 1:100,000 was effective and imparted no objectionable taste to the water. Cresol has also been recommended for bilharzia-infected waters. It was used for staining floors and bedside tables with excellent effect. Cresol for use in the field was contained in drums, which drums served many useful purposes and were eagerly sought by sanitary sections.

The use of formaldehyde was chiefly confined to the spraying of infected premises, and for the destruction of flies, either by spraying or in solution in saucers placed in all kitchens and dining halls. At one period of the war great discomfort and even injury to health were caused among the men engaged in sorting and checking pay-books sent down from the battle-fields; these books were often soaked in blood and other discharges, and consequently were very objectionable to deal with. In addition to improvement of the ventilation of the rooms in which the men worked and other general measures, Beveridge had the pay-books submitted to the action of formaldehyde,

generated in a simply made chamber by means of potassium permanganate and formalin, with the result that all objectionable smell was completely removed and the men worked in comfort. This effect is due to the action of formaldehyde on protein matter and is one well worth remembering. The only disadvantages of formaldehyde are its irritating effects and its relatively high cost.

The third disinfectant, chloride of lime, was invaluable. It is necessary, however, that it be well protected from light, heat, and moisture, or it quickly fails in its effect through loss of the available chlorine on which its disinfecting properties depend. From the commencement of the war all water-supplies were disinfected by means of bleach or chlorine gas, and it was necessary that only the purest bleach should be used for this purpose. Two grades were supplied—one for general disinfecting purposes, not necessarily of the purest, and the other put up in small tins for water purification, containing, according to specification, not less than 30 per cent of available chlorine. Bleach is unsuitable for use in hot climates, and in Mesopotamia had to be replaced by another halogen. The custom of sprinkling chloride of lime on the ground in unsavory places dies hard. If there is necessity to use a deodorant for such a purpose, then it is evident that sanitation has failed, and little is gained by hiding one smell by another. Chloride of lime was also invaluable for disinfecting and removing from effluents from ablution benches and laundries the soap which would otherwise have choked the soakage-pits into which they were discharged.

Reviews

SYPHILIS. By Loyd Thompson, Ph.G., M.D. Second edition, thoroughly revised. Lea & Febiger, Philadelphia, 1920. Price $7.

As the author well says in his preface, the increase in our knowledge of syphilis during the last seventeen years finds no equal in the entire history of medicine. The advance began with the epoch-making work of Metchnikoff and Roux in transmitting syphilis to the lower animals, and the introduction of arsphenamine by Ehrlich placed in the hands of the profession a sharp tool with which they might carry out their work.

A very considerable part of this, the second, edition of Dr. Thompson's book is devoted to diagnosis and treatment, a fact which will appeal strongly to the practitioner in distinction from the laboratory worker. On the other hand it is to be noted that he by no means ignores the laboratory diagnosis of syphilis, recognizing the valuable aid which laboratory methods give us in the diagnosis of the disease and in the study of the effects of treatment.

Those who have seen the first edition of this book will remember that it is thorough and adequate. It begins with a chapter upon the history of syphilis in the old world and in the new, and the discussion of its importance both in the sense of its geographical distribution, its prevalence, and its economic importance. Altogether the volume contains 24 chapters, divided into three parts, the last part being devoted to congenital syphilis, while part two deals chiefly with syphilis of the various portions of the body in its acquired form. Fifty-three pages are devoted to the laboratory diagnosis and sixteen pages to the clinical diagnosis, but this does not give a fair idea of the discussion of diagnosis in full, for there is a preceding chapter containing fifty-seven pages upon the clinical history of the disease which is devoted to the symptomatology of acquired syphilis.

A copious bibliography is included by foot-notes on almost every page of the text.

We note with interest what the author has to say in regard to the comparative

value of mercury and arsphenamine. He quotes opposing views in regard to this matter and evidently reaches the conclusion which we believe has been generally accepted, namely, that arsphenamine is of the greatest value in combating what might be called the acute manifestations of syphilis, but that it has by no means driven mercury from the boards. Nevertheless he is evidently a friend of the newer drug, for he claims that the consensus of opinion of the majority of syphilologists is that arsphenamine is more potent than mercury and that most of the lesions of syphilis clear up more rapidly under the arsenic preparation than under the old remedy. Dr. Thompson is, however, sufficiently cautious to add that the time since the introduction of arsphenamine has been so comparatively short that definite conclusions from clinical evidence alone are not possible, although he believes that the laboratory evidence supports the claims for arsphenamine.

THE ENDOCRINES. By Samuel Wyllis Bandler, A.B., M.D. W. B. Saunders Company, Philadelphia, 1920. Price $7.

Dr. Bandler, who is the Professor of Gynecology in the New York Post-Graduate Medical School, has been a frequent contributor to medical literature within recent times, devoting his articles to a consideration of the value of the endocrine glands derived from animals in the treatment of various functional and organic disorders in human beings. The present volume contains 486 pages, and, therefore, it is evident at once that the author feels that he has a large field to cover. Much that the book contains, however, is associated only indirectly with endocrinology. Thus, there is a chapter upon Environment and Heredity, another upon Instincts and Emotions, and still another upon Mental and Nervous Defects and Criminality, Neuroses and Psychoses, Phobias, etc. The majority of the chapters, however, deal definitely with the title of the book, and the reader will secure a great deal of information as to the results which Dr. Bandler thinks he has obtained by the use of these glands. About 120 pages are given at the close of the book to reports of clinics at the Post-Graduate Hospital, in which cases were described and the results of glandular treatment were given.

The book is a distinctly personal one, not provided with a bibliography, and quoting other writers to a much less extent than is customary with authors dealing with this theme at the present time.

CHEMICAL PATHOLOGY. By H. Gideon Wells, Ph.D., M.D. Fourth edition revised and reset; 695 pages. W. B. Saunders Company, Philadelphia, 1920. Price $7.

The first edition of this book appeared in 1907, and this, the fourth, edition has been so thoroughly revised that it was necessary to reset the type and even to recopyright it. It does not follow the path usually followed in books dealing with pathology, but as the word "chemical" indicates, it is a discussion of general pathology from the standpoint of the chemical processes involved. Thus one of the most important problems of the physiological chemist as well as for the active practitioner is the study of those disorders of nutrition associated with growth and repair and to which, in their serious forms, the term Deficiency Diseases has been applied. There is also being added to medical literature almost every month additional information in regard to the reaction of immunity, and for this reason in this edition the author has introduced a chapter upon "Anaphylaxis and Allergy."

The author recognizes that his text is one which should provide the investigator with suggestions as to lines of further investigation both in new fields and in completing evidence already in existence. In order that the more advanced character of the text may be understood, the author has deemed it proper to include a brief discussion of the elementary principles of physical chemistry and the fundamental principles of physics and chemistry of living cells discussed in an introductory chapter. He has called to his assistance Dr. Woodyatt to prepare and revise the chapter on diabetes.

A notable point in the book which we

would expect to find, because the author wishes it to be a guide to others, is the very copious bibliography dealing with the various subjects treated. Not infrequently 10 or 15 references are given on page after page as well as numerous bibliographical references at the end of chapters. The book is a most scholarly one and reveals extraordinary familiarity with the study of medical literature along these lines, both in this country and abroad.

A Text-book of Nervous Diseases. By Charles L. Dana, A.M., M.D., LL.D. Ninth edition, illustrated. William Wood & Company, New York, 1920. Price $6.50.

This standard book, which is now twenty-eight years old, renews its youth each time the author touches its pages for the purpose of revising it, and in renewing its youth maintains its usefulness. Unlike many other books, it has not increased materially in size with the appearance of many editions, which is a tribute to the fact that its learned author knows how to condense much valuable information and to eliminate that which has become archaic and useless. The author has prepared a chapter on Psychology in its various phases and another one on Endemic Encephalitis. He points out that his association with young and active neurologists has spurred him to keep the book thoroughly up to date, and he states that he has not given more space to endocrinology in relation to the nervous system because, as he well says, it is an illusive science and not yet in the form of a classified knowledge fit for presentation to students and practitioners. In other words, he recognizes the growing importance of endocrinology, but thinks that it is at the present time somewhat embryonic and uncertain.

Common Infections of the Kidneys. By Frank Kidd, M.D., B.C., F.R.C.S. (Eng.). With an additional lecture on the Bacteriology of the Urine, by Philip Panton, M.D. The Oxford University Press, New York, 1920. Price $7.25.

In a space of less than 350 pages Mr. Kidd, who is Surgeon in Charge of the Genito-Urinary Department of the London Hospital, deals with common infections of the kidneys with particular reference to the colon bacillus and allied bacteria. His text is based upon a course of lectures delivered at the London Hospital, and he illustrates what he has to say by five colored plates and fifteen other illustrations, some of which show specimens and some of which are charts.

In his Preface he says "Bacteria are *not* the cause of bacterial infections." He makes "this statement deliberately so as to startle the minds of the bacteriologists out of the settled state of complacency into which they have sunk." He says that the study of bacteria has led medicine astray for the time being. His distinction is that bacteria are the exciting cause of the infection, which may seem a distinction without a difference. He also points out that many bacteria universally present in the throat, bowels and skin can become pathogenic under certain circumstances, which is especially true of the colon bacillus, the streptococcus, the staphylococcus, the pneumococcus, and numerous other microorganisms. He points out that these organisms are daily invading the blood-stream and are being distributed throughout the tissues, afterward being got rid of by the excretory channels, and only exceptionally do they produce evil results. In other words, the whole object apparently of the author is to insist that centering our minds upon bacteriology we have studied the germ rather than the infected human being in the sense of having an eye to the predisposing causes which result in the patient falling a victim to infection.

The book is based upon his own large practical experience. After the preliminary chapters as to methods of examination and diagnosis we think that our readers will be most interested in the pathways by which the author believes that infection of the various genito-urinary organs occurs. The book is one which deals more largely with the clinical manifestations of disease than it does with its treatment, although in the case histories, of which there are a very large number, taking up a considerable portion of the book, the treatment which

was carried out in each instance is given. The book closes with a number of references to British and American literature which the author deems important.

JOHNS HOPKINS HOSPITAL REPORTS. Special Volume. Investigations of the Central Nervous System. By R. H. Clark, B.A., M.B.

Part I of this Special Report of less than 200 pages deals with the methods and instruments employed in investigating the nervous system, while Part II is made up of an Atlas of Photographs of the frontal sections of the cranium and brain of the Rhesus monkey. This second part is the combined contribution of Mr. Clark and E. E. Henderson, and comes from the laboratory of pathological chemistry of University College, London.

All men who are engaged in laboratory work dealing with the central nervous system will be interested in this publication, because it sums up for them an immense amount of valuable information gathered from other writers, and also because directions are given as to how experiments can be made, and how the animals which are used can be properly taken care of before and after the experiment, with information, also, as to what can be done toward studying and preserving the specimens which are gathered together.

COLLECTED PAPERS OF THE MAYO CLINIC. Edited by Mrs. M. H. Mellish. Volume XI, 1919. Published in September, 1920. The W. B. Saunders Company, Philadelphia, 1920. Cloth, price $12.

In previous issues of the THERAPEUTIC GAZETTE we referred in terms of praise to these very excellent contributions which are made from time to time by the Mayo Clinic, not only to surgery but to medicine as well. The present volume contains no less than 1331 pages and is copiously illustrated. It deals, of course, largely with surgical propositions and with medical ones which are nearly related to surgical procedures. The richness of its contents makes one feel almost hopeless at the thought of being able to grasp all the points of value which it contains. In addition to dealing with matters which deal with practice in medicine and surgery, there are articles upon the Socialization of Medicine and of Law; The Educational Possibilities of the National Medical Museum and Graduate Medical Education in Great Britain and France; and there is an account of the Memorial Meeting in honor of Sir William Osler, which was held by the staff in the Mayo Clinic on New Year's eve, 1919.

A MANUAL OF PATHOLOGY. By Guthrie McConnell, M.D. Fourth edition. W. B. Saunders Company, Philadelphia, 1920. Price $4.50.

This excellent little manual, which first appeared in 1906, has achieved its success because the author has the happy faculty of condensing a large amount of information in a small space and in choosing illustrations which really help in the elucidation of the text. Although it is a 12-mo volume of 611 pages, it contains an immense amount of valuable information. It should be popular with students because of its brevity and thoroughness, and with those practitioners who wish to keep in touch with morbid anatomy and pathology, because by turning to it they can with no waste of time get excellent opinions and clear views of the points which interest them. Many of the illustrations are taken from other authors, the writer recognizing that where a very typical picture can be obtained elsewhere it is unwise to try to reproduce an original which may not show so clearly the subject which is under discussion.

PRACTICAL PREVENTIVE MEDICINE. By Mark M. Boyd, M.D., D.P.H. Illustrated. W. B. Saunders Company, Philadelphia, 1920. Price $4.

Dr. Boyd is Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas, and has been engaged for a number of years in the line of work which is covered by this contribution to medical literature. His aim, of course, is to present the salient features of modern preventive medicine, and although he admits that it has been necessary

to condense a large amount of information, thereby making his consideration of certain topics brief, he compensates for this by numerous references which he hopes will help those who wish to study the matter further find what they need. He does not claim that his text is in any way original, but insists that the medical profession must play an important rôle in the field of preventive medicine and public health if it does not wish this subject to be taken from it and placed in the hands of those less qualified to attend to it. In many respects the book may be said to be one upon what used to be called hygiene, since it deals not only with the matter of feeding, hazards of occupation, heating and ventilation, and similar subjects, but even takes up the statistics as to population, morbidity, and mortality.

The illustrations, which are not numerous, are taken in the majority of instances from other works. They are well selected to illustrate the points which the author wishes to emphasize.

A Text-book of Pharmacology and Medical Treatment for Nurses. By J. M. Fortescue-Brickdale, M.A., M.D., M.R.C.P. The Oxford University Press, New York, 1920. Price $10.

Here we have a book designed for nurses, gotten out in the form of what might be characterized as an edition de luxe, with colored plates showing crude drugs and with numerous illustrations, no less than 77, covering a very wide field from black-and-white illustrations of plants to a diagram of the *x*-ray tube. In the space of 372 pages the author has included 32 chapters.

The book is much too scientific in our opinion for the nurse, and $10 puts it out of reach of most nurses, and certainly out of the reach of the average training school.

The author is well known as one who has made valuable contributions to pharmacology, which contributions are useful to the practitioner and pharmacologist, but in this instance we believe that he has failed to recognize the limitations which surround a nurse's duty; thus, we can see no advantage in having a chapter upon Diseases of the Blood and Ductless Glands in a nurses' manual of drugs, wherein he treats of such maladies as leukemia and diseases of the lymphatic glands, thyroid, parathyroid, suprarenals, and hypophysis. Nevertheless it goes without saying that as a reference book in the library of a nurses' training school it will prove interesting and useful.

Basal Metabolic Rate Determination. By Walter M. Boothby, M.D., and Irene Sandiford, Ph.D. W. B. Saunders Company, Philadelphia, 1920. Price $5.

The authors of this book are attached to the section of Clinical Metabolism in the Mayo Clinic. It is not a large volume, there being only 117 pages including the index. There are a number of excellent illustrations of the apparatus which must be employed in the methods which the authors describe, and considerable space in the text is taken up by a useful bibliography. We note with interest that no less than 21 references are made to the work which has been done by Benedict, by himself or in association with others. No other author approaches this one in the richness of his contributions to this subject. The book at its close gives a large number of well-printed tables which are of assistance in working out the technical details described in the text.

The Surgical Clinics of Chicago. October, 1920. Volume 4, No. 5. Illustrated. W. B. Saunders Company, Philadelphia and London.

This last contribution to clinical surgery contains, among other articles of value, one by E. Wyllys and Edmund Andrews and Mix on "Dumping Stomach" and Other Results of Gastrojejunostomy; one by Strauss on Various Methods of Blood Transfusion as Most Applicable in Various Ages; one by Albert Ochsner on Rupture of the Gall-bladder into the Duodenum; one by Eisendrath on Infections of the Kidney; one by Kanavel on Hematuria; and one by Moodie on Surgery and Disease Among the Pre-Columbian Indians of North America.

To the surgical practitioner these books, always of value, are often both an inspiration and a guide to better work.